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THE AFRICAN DORILAIDÆ

(PIPUNCULIDÆ-DIPTERA)

BY

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THE AFRICAN DORILAIDÆ

(PIPUNCULIDÆ-DIPTERA)

This paper is by necessity a preliminary study of the African Dorilaidæ. These flies have received but very little attention in the past and because of the paucity of material in the available collections this paper is far from being complete. There remains a great deal to be added to our knowledge of these important parasites in the tropics.

The writer is indebted to the following Entomologists and institutions for the loan of material used in this study : Mr. H. OLDROYD, British Museum of Natural History; Dr. S. A. NEAVE, Commonwealth Institute of Entomology; Dr. C. H. CURRAN, American Museum of Natural History and Dr. R. H. BEAMER, University of Kansas. The types and most of the paratypes in the material of the Commonwealth Institute of Entomology will be presented to the British Museum (Natural History).

KEY TO KNOWN GENERA [1].

1. Ocellar bristles present; head hemispherical; occiput very narrow, scarcely visible from lateral view; densely pilose species 2
— No ocellar bristles; head nearly spherical; occiput generally swollen and plainly visible; usually sparsely pilose species 3
2. Wing venation incomplete, discal cell open apically, posterior crossvein (median) and major part of M_{1+2} and anal vein lacking ..... *Chalarus* WALKER.
— Wing venation complete, fourth vein (M_{1+2}) appendiculate, with a fork or appendix beyond the posterior crossvein ..... *Prothechus* RONDANI.
3. Anal vein complete, reaching wing margin or verging with the cubital vein 4
— Anal vein absent, or represented just by a rudiment at the wing base ..... *Beckerias* ACZEL.

[1] Adapted from HARDY, 1943, *Univ. Kansas Sci. Bull.*, 29 : 24-25.

4. Stigma absent, no darkened area between the subcostal vein and the apex of vein R_{1+2} 5

— Stigma present, usually filling all of the third costal section ..... *4a Dorilas* MEIGEN.

4a. Propleura each with a fan of long hairs ..... *Dorilas* (*Dorilas*) MEIGEN.

— Propleura bare ..... *Dorilas* (*Eudorylas*) ACZEL.

5. Crossvein r-m situated at the basal one-fifth of the discal cell; eyes of male dichoptic; hind margin of compound eyes curved inward on upper half so that the occiput is broad, more swollen above; abdomen of both sexes clavate, from lateral view ..... *Dorylomorpha* ACZEL.

— Crossvein r-m usually near middle of the discal cell, never below basal one-third; eyes of male usually holoptic; occiput not strongly swollen above, eye margin not incurved; abdomen not clavate ..... *Tömösváryella* ACZEL.

Prothechus RONDANI.

Prothechus RONDANI, 1856, Dipt. Ital. Prodr., 1 : 139.
Cephalops THOMSON. (*nec* FALLEN), 1869, Opuscula Entomol., 2 : 122.
Prothechus BECKER, 1897, Berl. Ento. Zeitschr., 42 : 93.
Verrallia MIK, 1899, Wien. Ento. Zeit., 18 : 137. (Change of name for *Prothechus* BECKER *nec* RONDANI.)
Prothecus HOUGH, 1899, Bost. Soc., 29 : 85.

This genus is characterized by having the head hemispherical, ocellar bristles well developed, third antennal segment rounded at apex, the fourth vein (M_{1+2}) with an appendix beyond the median crossvein and by being densely pilose.

Genotype : *Prothechus auctus* (FALLEN) (*Cephalops*).

Only one species is known from Africa, it is the genotype.

Prothechus auctus (FALLEN).

Cephalops aucta FALLEN, 1817, Dipt. Suec., Syrphici : 61.
Verrallia virginica BANKS, 1915, Psyche, 22 : 169.

The species is well known in Europe and America and has been adequately described by SACK (1) and HARDY (2), there is no need of repeating the description in this paper.

Type locality : not known.

Fallen's type is possibly at Stockholm. The species has not been previously recorded from Africa. The writer has seen one specimen from Hamman Rhira, North Algeria, May 11 (ROTHSCHILD and HART).

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(1) *Die Flieg. der Palæarkt. Reg.*, 1935, 32 : 6.

(2) *Univ. Kans. Sci. Bull.*, 1943, 29 : 27-28.

Chalarus WALKER.

Chalarus WALKER, 1834, Entom. Magaz., 2 : 269.
Ateleneura MACQUART, 1834, Rec. Soc. Sci. Lille : 356.

This genus is readily recognized by its peculiar wing venation. The fourth vein (M_{1+2}) is lacking beyond the $r-m$ crossvein, the median crossvein and the anal vein are completely lacking. The head is hemispherical and the occiput very narrow. The ocellar bristles are distinct and the eyes of the males dichoptic.

Genotype : *Chalarus holosericeus* (MEIGEN) (*Pipunculus*).

Only a single species is known from Africa.

Chalarus spurius (FALLEN).

Cephalops spurius FALLEN, 1816, Dipt. Sueciæ, Syrphici : 16.

This species is well known throughout Europe and America and has been adequately described by SACK (*ibid.* : 9-10) and HARDY (*ibid.* : 36-37). There is no need to repeat the description in this paper.

Type locality : not known.

Type possibly at Stockholm.

The species has not been previously recorded from Africa. The writer has seen one specimen from Cape Province, Somerset East, S. Africa 1-26, Jan. 1931 (R. E. TURNER).

Dorilas MEIGEN.

Dorilas MEIGEN, 1800, Nouv. Class. Mouch : 31.
Pipunculus LATREILLE, 1802, Hist. Nat. Crust. et Ins., 3 : 463.
Microcera MEIGEN, 1803, Illiger's Mag., 2 : 273.
Cephalops FALLEN, 1810, Specim. Dipt. Meth. : 10.
Alloneura RONDANI, 1856. Dipt. Ital. Prodr., 1 : 14.
Dorylas KERTESZ, 1910, Cat. Dipt., 7 : 368.

The genus is defined by having the stigma present, the wing venation normal, the occiput well developed and no ocellar, mesonotal or scutellar bristles present. The writer prefers to treat ACZEL's genera (1) as subgenera. The presence or absence of a propleural fan of hairs is a very excellent character except that it is sometimes difficult to see. The occiput often hides the propleura so that this character is obscured. The character was apparently first used by COLLIN but was not given generic significance until ACZEL's paper. It has not been mentioned before for African species and there is no way of

(1) *Zool. Anzeig.*, 1940, 132 : 151.

knowing from the original description where the previously described species will fit. The writer also prefers to treat all species of the genus *s. str.* alphabetically rather than to group them in their respective subgenera. Where the types have not been studied there is no way of knowing to which subgenus the earlier described species belong and the adopted procedure is considered less confusing.

Genotype : *Dorilas campestris* (LATREILLE) (*Pipunculus*).

KEY TO SPECIES OF *DORILAS*.

1. Males with the eyes distinctly separated on the front; very large robust species 6,0-6,5 mm. long 2
— Females. Males with the eyes joined for at least a short distance on the front; usually smaller more slender species 3
2. Hypopygium very large, well developed, longer than the fifth abdominal segment and with a large dorsal cleft extending from the apex to base (fig. 40 *b*) ..... *sinuosus* n. sp.
— Hypopygium smaller than the fifth segmennt and with an apical membranous area (fig. 28 *c*) ..... *meruensis* n. sp.
3. Abdomen at least in part polished, at least apices or sides of some or all segments bare of pollen 4
— Abdomen opaque to faintly shining, entirely pollinose 9
4. Legs chiefly black, femora entirely black except for narrow yellow apices; third antennal segment acute to obtuse at apex 5
— Legs chiefly or entirely yellow, femora sometimes with brownish to black median bands but the bases and apices are broadly yellow; third antennal segment usually acuminate 31
5. Face of both sexes very narrow, only one-third to one-half as wide as the front ... 6
— Face normal, equal to front in width 7
6. Third antennal segment bright yellow; humeri, tegulæ and halteres brown to black; the m crossvein one-third longer than the last section of the fifth vein; stigma occupying only the apical three-fourths of the third costal section; apex of apical cell very narrow, only one-half as wide as the the r-m crossvein is long ..... *conspectus* n. sp.
— Third antennal segment brown to black; humeri, tegulæ and halteres yellow; the stigma fills almost all of the third costal section; the m crossvein is slightly longer than the last section of the fifth vein and the apex of the apical cell equal to the length of the r-m crossvein ..... *brevicornis* (LOEW).
7. Abdomen entirely polished black, except for the basal portions of the first two to three terga; third antennal segment brown to black ..... *turneri* n. sp.
— Abdomen polished only on the apices of some segments, basal portions of all terga pollinose; third antennal segment yellow 8

8. Abdomen chiefly subshining with apices of segments two to five polished; the third and fourth costal sections combined are about one-half the length of the fifth section; wings hyaline; large species, 5,0-6,0 mm. long ..... *meruensis* n. sp.

— Abdomen chiefly opaque, only apical half of the fifth tergum and sometimes the very narrow apex of fourth polished; the third and fourth costal sections combined are longer than the fifth; wings brown fumose; small species, 2,5-3,3 mm. long ..... *angustifacies* n. sp.

9. Femora black, except for narrow yellow apices 10

— Legs chiefly or entirely yellow, femora sometimes with dark median bands 47

10. Third antennal segment very tiny, scarcely larger than the second segment, rounded at apex and porrect in position (fig. 35 *b*); tibiæ and tarsi almost entirely black. Front of male with a polished black spot in the middle ..... *porrectus* n. sp.

— Not as above, third antennal segment two or more times larger than the second and directed downward; tibiæ and tarsi chiefly yellow; front of male without a polished spot 11

11. Male hypopygium very large and symmetrical, equal or larger than the fifth abdominal segment and with no membranous area or distinct cleft; lateral margins of the sixth tergum of the female extend around the abdomen and meet on the venter forming a receptacle for the ovipositor 12

— Male hypopygium usually asymmetrical and with a membranous area or cleft, if symmetrical in shape it is much smaller than the fifth segment; sixth tergum of the female not so developed 17

12. Males 13

— Females 15

13. Hypopygium very large, bladder shaped, two times as long as fifth segment and with no division on the dorsum; hind trochanters without hairs or bristles 14

— Hypopygium not so greatly developed and with an asymmetrical division (not a cleft) from base to apex; hind trochanters with long fine bristles below ..... *trochanteratus* (BECKER).

14. Hind trochanters each with an elongate appendage below, hind legs strongly bowed (fig. 21 *b*) ..... *flexus* n. sp.

– Hind trochanters without such a development, hind legs normal ... *ruralis* (MEIGEN).

15. Base of ovipositor cone shaped, piercer elongate ..... *ruralis* (MEIGEN).

— Base of ovipositor globose, piercer very short 16

16. Third antennal segment yellow; piercer of ovipositor yellow-red; hind tibiæ arcuate. *flexus* n. sp.

— Third antennal segment black; piercer dark colored; posterior tibiæ straight ..... *trochanteratus* (BECKER)

17. Third antennal segment short to moderately acuminate (fig. 36 *a*); male hypopygium with a large apical depressed area; front of male dark gray to black; small species 2,5-3,4 mm. long 18

— Not with the above combination of characters, third antennal segment round to acute or very long acuminate at apex 21

18. Crossvein r-m situated at basal one-third of the discal cell; third costal section two or more times longer than the fourth; front dark gray 19

— Crossvein r-m near middle of the discal cell; third costal section just slightly longer than the fourth; front of male subshining black ..... *pusillus* n. sp.

19. Humeri and knobs of halteres brown to black; legs chiefly black; sixth tergum of male poorly developed, not visible even from a lateral view; seventh tergum ventral in position, not visible from above (fig. 30 *a*); front of male with a shining black spot in middle just above antennæ ..... *natalensis* n. sp.

— Humeri and halteres yellow, tibiæ and tarsi chiefly so; sixth tergum well developed, plainly visible from a lateral view; seventh visible from above; front of male without such a shining spot 20

20. Vein R_3 and the petiole of cubital cell fading out before the wing margin; third costal section about four times as long as the fourth; male hypopygium with an apical membrannous area extending nearly to the base of the segment above (fig. 17 *a*) ..... *evanidus* n. sp.

— Vein R_3 and petiole of cubital cell reaching wing margin; third costal section about two times as long as the fourth; apical membranous area not extending toward the base (fig. 15 *a*) ..... *diversus* n. sp.

21. Third antennal segment acute or rounded at apex 22

— Third segment long acuminate 25

22. Third costal section two times longer than the fourth; crossvein r-m at basal one-third of the discal cell. Wings hyaline ..... *falcatus* n. sp.

— Third section about equal to the fourth; crossvein r-m near middle of the discal cell. Wings usually fumose 23

23. Femora with broad brown to black bands, bases and apices broadly yellow; third antennal segment yellowish; chiefly grayish pollinose species with gray vittæ on the abdominal segments ..... *mutillatus* (LOEW).

— Femora black except for narrow apices and sometimes extreme bases of hind femora; third antennal segment dark brown to black; chiefly brown pollinose species, without gray vittæ on abdomen 24

24. Wings brown fumose; crossvein r-m at middle of discal cell; tegulæ dark brown to black. Sixth tergum of male not visible from above; male hypopygium with no apical membranous area but with a dorsal cleft on the right (fig. 26 *b*)..... *libratus* n. sp.

— Wings very lightly fumose; crossvein r-m situated before the middle of the discal cell. Tegulæ yellow; sixth tergum of male visible from above; hypopygium with an apical membranous area ..... *quadratus* n. sp.

25. Third costal section two times as long as the fourth, third and fourth sections combined are more than two times longer than the fifth; hypopygium of male very asymmetrical, longer on the right side than on the left and divided into two unequal parts, the left side is scarcely one sixth as long as the right ..... *katonæ* (KERTESZ).

— Wings and hypopygium not as above 26

26. Apex of third antennal segment very long, slender, somewhat bristle-like, about equal to the remainder of the third segment (fig. 5 *a*) 29

— Third antennal segment gradually tapering to a long point at apex, point not équal to the remainder of the third (fig. 3 *a*) 27

27. Third costal section considerably longer than the fourth; posterior trochanters bare; piercer of female shorter than its base, extending to about the base of the fourth abdominal segment (fig. 3 *c*); male hypopygium with a basal cleft (fig. 3 *b*) ..... *aculeatus* (LOEW).

— Third section about equal to fourth; posterior trochanters of female with long hairs below; piercer eqal or longer than base, reaching beyond base of second segment; male hypopygium without a basal cleft 28

28. Abdominal segments narrowly grayish fasciated on their hind margins; petiole of cubital cell two times longer than the r-m crossvein. Crossvein m oblique, slightly curved in the middle (fig. 25 *a*); female ovipositor straight, long and slender; larger species, 4.5 mm. long ..... *liberia* (CURRAN).

— Abdomen not fasciated; petiole of cubital cell equal to r-m crossvein; m crossvein straight; female piercer curved, thick; male hypopygium small, symmetrical, no membranous area or cleft; smaller species, 3,3-3,5 mm. long ..... *æmulus* n. sp.

29. Humeri yellow, halteres usually so; front opaque, face and front normal in size. 30

— Humeri and knobs of halteres black; front of male subshining, face very narrow, front minute ..... *parvifrons* (LOEW).

30. Hind trochanters densely white pubescent below; fourth section of costa equal in length to the fifth; male hypopygium symmetrical, with no membranous area (fig. 5 *d*) ..... *æthiopicus* n. sp.

— Hind trochanters bare; fourth section of costa about one-half as long as fifth; male hypopygium asymmetrical, with a large apical membranous area on the right side (fig. 23 *b*) ..... *inornatus* n. sp.

31. Only bases of abdominal terga polished; abdomen and margin of scutellum with long fine yellow pile on the sides; third costal section three times longer than the fourth and about equal to the length of the fifth; third antennal segment short acute (fig. 31 *c*) ..... *abditus* n. sp.

— Not as above 32

32. Abdomen strongly clavate, very densely covered with short, erect, bristly hairs; third costal section about one-half as long as the fourth; stigma very small, occupying only the apex of third section ..... *albivillosus* n. sp.

— Not as above, abdomen rarely clavate but not conspicuously pilose, usually almost devoid of pile 33

33. Third costal section very short, only one-third to one-fourth as long as the fourth section; stigma occupying only apical half of the third section; r-m crossvein situated at basal one-fourth to one-fifth of the discal cell; thorax and abdomen entirely polished ..... *candidulus* n. sp.

— Wing venation not as above; thorax and scutellum polished only in *cupreiventris* (BECKER) 34

34. Third antennal segment pointed at apex, acute to long acuminate 35

— Third segment rounded at apex, short acute to obtuse 41

35. Anterior portion of abdomen reddish to yellow, at least on the sides 36

— Abdomen entirely black 39

36. Third antennal segment acute (fig. 8 *b*) (females run here) ..... *bellulus* n. sp.

— Third antennal segment long acuminate (fig. 44 *a*) 37

37. Basal four abdominal segments entirely yellow to red except for a narrow black, longitudinal vitta down the dorsum; pleura and sides of mesonotum brown to black; male hypopygium with a membranous area and a prominent apical keel (fig. 2 *a*) ... *abdominalis* (LOEW).

— Only sides of abdomen yellow to reddish; pleura and sides of mesonotum yellowish; male hypopygium symmetrical with no membranous area or keel 38

38. Hind femora each with twelve or more strong flexor spines on each side below; hind tibiæ with strong bristles on the outside of the swelling; third costal section nearly two times longer than fourth; abdomen polished on the sides, lightly pollinose on the dorsum; first segment with strong hairs on each side ..... *zululandicus* n. sp.

— Hind femora with only three to four very small flexor spines; hind tibiæ without strong bristles; third costal section equal to the fourth; abdomen chiefly polished on the dorsum; first segment with no strong lateral hairs ..... *pallidipleura* (CURRAN).

39. Third antennal segment acute; r-m crossvein near middle of the discal cell; male hypopygium with an apical membranous area ..... *bellulus* n. sp.

— Third segment acuminate; r-m at basal one-third of the discal cell; hypopygium with a dorsal cleft on right side 40

40. Humeri yellow, antennæ black; third costal section slightly longer than the fourth; small species, 2,0 mm. long ..... *cupreiventris* (BECKER).

— Humeri brownish to black, third antennal segment yellow; fourth costal section longer than the third; medium sized species, 4,0 mm. long. ..... *flavicrus* (RAPP).

41. Third antennal segment very tiny, scarcely larger than the second segment (fig. 33 *a*). *parvicornis* n. sp.

— Third antennal segment two or more times larger than second 42

42. Abdomen almost entirely opaque, only hind margin of the fifth segment polished, very narrow apex of fourth sometimes shining; humeri black; face of male very narrow; small dark winged species, 3,0-3,5 mm. long ..... *angustifacies* n. sp.

— More of abdomen polished, at least broad apices of fourth and fifth and narrow apex of third polished; humeri yellow; face broad; larger species, 5.0-6.0 mm. 43

43. Third antennal segment yellow 45

— Third antennal segment brownish to black in ground color 44

44. Only apices of abdominal segments shining; third costal section three times longer than the fourth ..... *obtusus* n. sp.

— Abdomen entirely polished; third costal section not so elongated ..... *læviventris* (LOEW).

45. Propleura bare; humeri black; third section of costa two times longer than fourth; r-m crossvein situated near middle of the discal cell ..... *encerus* n. sp.

— Propleura each with a fan of long hairs; humeri yellow; third section about equal to the fourth; r-m at basal one-third of the discal cell 46

46. Abdomen chiefly opaque, only apices of segments three to five shining; abdomen rather sparsely pilose; seventh tergum of male plainly visible from a dorsal view; male hypopygium as large as the fifth segment ..... *bequaerti* (CURRAN).

— Abdomen entirely metallic black on the dorsum, except the first tergum; densely covered with suberect dark pile; seventh tergum scarcely visible from above; male hypopygium smaller than the fifth segment ..... *læviventris* (LOEW).

47. Apex of third antennal segment produced into a long slender, bristle like development. This is approximately equal or longer than the remainder of the segment (fig. 39 *b*) 48

— Apex of third segment not so elongated 49

48. Abdomen densely covered with short erect, bristly hairs (fig. 39 *a*); apex of third segment about equal in length to the arista (fig. 39 *b*); legs entirely yellow ..... *setiformis* n. sp.

— Abdomen not as above; apex of third segment about half to one-third the length of the arista (fig. 42 *a*). Femora discolored ..... *umbrinus* (LOEW).

49. Third costal section two to three times longer than the fourth; abdomen faintly subshining, lightly pollinose; sides and margin of scutellum conspicuously clothed with long yellow pile 50

— Not as above 51

50. Crossvein r-m at basal one-fourth of the discal cell; third costal section two times longer than the fourth; third antennal segment short acuminate; femora discolored with brown ..... *reconditus* n. sp.

— Crossvein r-m at basal one-third of the discal cell; third costal section three times longer than fourth; third antennal segment obtuse, rounded below; femora entirely yellow ..... *abditus* n. sp.

51. Male hypopygium rather symmetrical, without a membranous area or cleft; the known females have the lateral margins of the sixth tergum meeting on the venter to form a receptacle for the ovipositor; the hind margin of the sixth tergum of female not excised and the piercer straight. The female of *lubuti* (CURRAN) is not known but will be distinguished by its large size, brown wings, strongly curved fourth vein and all yellow legs 52

— Male hypopygium asymmetrical, with a membranous area or cleft; known females with the sixth tergum not so developed and often with a concavity or furrow on hind margin; piercer usually curved 58

52. Small species, 2,5-3,5 mm. long; wings lightly fumose to hyaline; male hypopygium globose in shape, rounded at apex 53

— Large species, 6,0-6,7 mm. long; wings brown fumose. male hypopygium tapering to a blunt point at apex (fig. 27 *c*) ..... *lubuti* (CURRAN).

53. Males 54

— Females 56

54. Hypopygium very large, bladder shaped, two times as long as the fifth segment and with no division on the dorsum. Hind trochanters without bristles or hairs 55

— Hypopygium not so greatly developed and with an asymmetrical division (not a cleft) from base to apex. Hind trochanters with fine bristles below ..... *trochanteratus* (BECKER).

55. Hind trochanters with an elongate appendage below; hind legs strongly bowed ..... *flexus* n. sp.
— Hind trochanters without such a development; hind legs normal ... *ruralis* (MEIGEN).
56. Base of ovipositor cone shaped, piercer elongate ..... *ruralis* (MEIGEN).
— Base of ovipositor globose, piercer very short 57
57. Third antennal segment and piercer yellow; hind tibiæ curved ..... *flexus* n. sp.
— Third segment black, piercer dark colored; posterior tibiæ straight ..... *trochanteratus* (BECKER).
58. Male hypopygium small, hemispherical, with a small rounded depressed area; sixth tergum of female excised on hind margin; piercer curved upward; femora with broad black rings ..... *fluviatilis* (BECKER).
— Not as above, if sixth tergum of female is excised on hind margin the piercer is straight; femora usually entirely yellow 59
59. Femora with broad brownish median bands; male hypopygium with a dorsal cleft as well as an apical membranous area 60
— Femora entirely yellow; male hypopygium without a dorsal cleft 63
60. Males 61
— Females 62
61. Sixth tergum plainly visible from dorsal view; hypopygium with a large, elongate and conspicuous membranous area at apex; abdomen very indistinctly fasciated; species, 3,0-3,2 mm. long ..... *excisus* n. sp.
— Sixth tergum not visible from above; hypopygium with a small, round, inconspicuous membranous area at apex; abdomen distinctly gray fasciated; species, 4,0-5,0 mm. long ..... *mutillatus* (LOEW).
62. Last abdominal tergum with a V shaped concavity on hind margin; piercer straight : third antennal segment long acuminate (fig. 18*c*) ..... *excisus* n. sp.
— Hind margin of sixth tergum not excised; piercer curved; third antennal segment acute to short acuminate (fig. 29*a*) ..... *mutillatus* (LOEW).
63. Segments of abdomen with broad gray fasciae; third antennal segment very small; about equal in size to the second segment; front of female strongly narrowed above. *calcaratus* n. sp.
— Abdomen not fasciated; third antennal segment much larger than the second; front of female not strongly narrowed 64
64. Third antennal segment long acuminate; sixth tergum of male plainly visible from above; male hypopygium with an elongate apical membranous area which extends half way down dorsum and with a keel in the middle of the membranous area ..... *galeatus* n. sp.
— Third antennal segment short acuminate to obtuse; sixth tergum of male not visible from above; hypopygium with the membranous area not extended onto the dorsum, no keel present 65
65. Propleura with a fan of hairs; large, chiefly subshining black species, lightly pollinose, 5,8 mm. long; third antennal segment short acute to obtuse; ultimate section of fourth vein very strongly curved; flexor spines of femora strong ..... *congoensis* n. sp.
— Propleura bare; medium sized species, 4.0 mm. long, densely gray brown pollinose; third antennal segment short acuminate; ultimate section of fourth vein straight; flexor spines very weak ..... *vicarius* n. sp.

Dorilas (Dorilas) abditus n. sp.
(Fig. 1 *a*.)

This species is related to *D. obtusus* n. sp. It is distinguished by having the abdomen entirely pollinose, the wings hyaline, the *r*—*m* crossvein situated at the basal one-third of the discal cell, the third antennal segment yellow, the femora entirely yellow and more slender and the male harpagones square tipped.

MALE. — *Head* : Junction of the eyes equal in length to the frontal triangle. Front and face densely silvery pubescent, front with a slight ridge extending longitudinally down the middle, this is colored like the rest of the front. Occiput entirely gray pollinose. Labellum bright yellow, palpi brown. Third antennal segment yellow, short acute (similar to fig. 31 *c*). Second segment with strong bristles above and below, the lower bristles almost reach the apex of the third segment. *Thorax* : Mesonotum and scutellum shining black in ground color, densely grayish brown pollinose. Scutellum rather densely haired, pleura yellowish brown in ground color. Propleura with a fan of long white hairs. Humeri and halteres yellow, the former with fine yellow pile on the upper portion. *Legs* : Entirely yellow, except for the black coxae and brown tips of tarsi. *Wings* : Entirely hyaline except for the yellowish fumose stigma. The stigma fills all of the third costal section. The third costal section is two to three times longer than the fourth and is about equal in length to the fifth. The *r*—*m* crossvein is at the basal one-third of the discal cell and the last section of the fourth vein is strongly curved. *Abdomen* : Shining black in ground color but densely pollinose so that the polish is nearly obscured. The basal one-third to one-half of each tergum is brown pollinose and the apical portions are cinereous. The sides of the segments are densely yellowish pilose. *Hypopygium* : Developed to the right and with a large apical membranous area (fig. 1 *a*). The cleft of the coxopodite is broadly U shaped, the harpagones are short, broad and similar in shape to those of *D. obtusus* n. sp. but the tips are square.

Length : body, 5,0 mm.; wings, 6,0 mm.

FEMALE. — Unknown.

Holotype male : Nyasaland, Ruo, 5.IV.1916 (R. C. WOOD).

One paratype male : Nyasaland, Cholo (R. C. WOOD).

Type returned to the Commonwealth Institute of Entomology. Paratype deposited in the U. S. National Museum.

Dorilas (Eudorylas) abdominalis (LOEW).

(Figs. 2 *a*, 54 *a*.)

Pipunculus abdominalis LOEW, 1857, Ofvers. of K. Vet.-Akad. Forhandl., 14 : 374.

This species is distinguished by its chiefly yellow to reddish abdomen, yellow slender legs and acuminate third antennal segment. The below described species is the only one encountered which fits LOEW's description and is apparently *abdominalis*. The male has not been previously described.

MALE. — *Head* : Junction of the eyes equal to the length of the front. Front and face silvery pubescent. Mouthparts and antennae yellow. Third segment short acuminate, similar to *D. zululandicus* n. sp. (fig. 44 *a*). LOEW's description in his Dipterenfauna Sudafrikas, I : 282 describes the third antennal segment as being long acuminate : « unterwarts in eine dornformige, behaarte Spitze verlangert », this may be another species. *Thorax* : Mesonotum and scutellum shining black in color, densely gray pollinose, hind margin of scutellum with rather numerous short pale hairs. Pleura brown to blackish, propleura bare. Humeri and halteres bright yellow. *Legs* : Entirely yellow, femora slender. *Wings* : Very lightly fumose. Stigma dark brown, filling all of the third section of the costa. Third section equal in length to the fourth. The fifth costal section is about three-fourths as long as the combined lengths of the third and fourth sections. The *r*—*m* crossvein is located at the basal third of the discal cell and the ultimate section of the fourth vein is but slightly curved. *Abdomen* : The abdomen is reddish yellow except for the narrow brownish base of the first tergum, the broad brown to blackish apex of the fifth tergum and the brownish yellow dorsal portion of the hypopygium. The first tergum is lightly grayish pollinose, the other terga are polished. The abdomen is somewhat clavate in shape, being widest at segment four and is rather thickly covered with short, erect, yellow hairs. *Hypopygium* : Rather thickly grayish pubescent, brownish yellow in ground color above and reddish yellow below. It is developed about three-fourths as long as the fifth segment and has a strong keel at apex on right side (fig. 2 *a*). The seventh tergum is plainly visible from a dorsal view. The harpagones were not visible in the specimens studied.

Length : body, 3,0-3,5 mm.; wings, 5,0 mm.

FEMALE. — A specimen at hand from Meru, Kenya, appears to belong here. The front is very slightly narrower than the face and is chiefly gray pubescent excepting the shining portion near the ocellar triangle and for a narrow shining black line extending down the median portion about one-third its length. The median gibbosity just above the antennae is faintly reddish brown in ground color. Sides of abdomen bright reddish yellow. Terga two to four with a rather black median line. Terga five and six shining black on the dorsum,

yellow on the sides. The sixth tergum has a V shaped excision in the middle on the hind margin and a median groove extending two-thirds its length. The lateral margins of the sixth tergum are strongly produced and meet on the venter to form a receptacle into which the ovipositor fits. The base of the ovipositor is small and globose in shape. The piercer is very short, about equal in length to the base and extending not much beyond the apex of the fifth abdominal segment (fig. 54 *a*). The base of the ovipositor is brownish black, the piercer is yellow-red.

Length : body, 4,0 mm.; wings, 5,2 mm.

Loew gave the body length as 1 1/2 lin. and the wings as 2 1/12 lin.

Type locality : Caffraria, S. Africa.

Type in Berlin Zoological Museum.

The specimens described above were from the following localities : Salisbury, S. Africa, May 1901, 5050 ft. in swamp (F. L. Snow); Uganda, Kampala, 13.II.1927 (G. L. R. Hancock) and Meru, July 1943 (Van Someren).

Dorilas (Eudorylas) aculeatus (Loew).

(Figs. 3 *a-c.*)

Pipunculus aculeatus Loew, 1857, Ofvers. of K. Vet.-Akad. Forhandl., 14 : 375.

The species here described most nearly fits Loew's descriptions of *aculeatus* than any other species which has been seen. The third antennal segment is yellow-brown in ground color, however, not black and the wings are hyaline not gray fumose.

The species is related to *D. æmulus* n. sp. but is distinguished by the longer third costal section, bare trochanters, the basal cleft on the male hypopygium and the short broad female ovipositor.

Male. — *Head* : The eyes are joined for approximately the length of the ocellar triangle. The lower portion of the front is silvery to gray pubescent, the mouthparts are chiefly yellow. The third antennal segment yellow-brown in ground color, apex pale, long acuminate, its apex tapering gradually into a long point (fig. 3 a). Third segment nearly bare of pubescence. *Thorax* : The dorsum of the thorax of the specimen is covered with glue but it is apparently brown pollinose. The scutellum is nearly bare. The pleura are brownish in ground color and gray pollinose. The propleura are bare. The humeri and halteres are yellow. *Legs* : The femora are brownish black, with only narrow apices yellow. The tibiae and first four subsegments of tarsi are yellow, the apex of each tarsus is brown. *Wings* : Entirely hyaline except for brown stigma which fills most of the third costal section. The third section of costa is two times longer than the fourth and the two sections combined are equal to slightly longer than the fifth section. The *r*—*m* crossvein is located at the basal one-third of the discal cell and the last section of the fourth vein is straight or nearly

so. *Abdomen* : Densely brown pollinose on the basal one-half to three-fourths of each segment. Apex of each tergum with a distinct gray band. Abdomen sparsely pilose. *Hypopygium* : Rather symmetrical and equal in length to the fifth segment from a dorsal view. There is no visible membranous area but a distinct basal cleft is present. The base of the coxopodite is plainly visible from a dorsal view, on the right side (fig. 3 *b*). Coxopodite and harpagones chiefly yellow. The cleft of the coxopodite appears to be very broadly U shaped and the harpagones are thick and short and fold up into the genital chamber.

Length : body, 3,0 mm.; wings, 3,4 mm.

Loew's measurements were : body, 1 3/4 lin.; wings, 2 1/12 lin.

Female. — The front is chiefly subshining black, just lightly grayish pubescent. The upper half of the front possesses a distinct median longitudinal ridge. The mesonotum and scutellum are grayish pollinose. The gray apical bands of the abdominal segments are not as distinct as in the male and the abdomen is faintly subshining. The apical margin of the sixth tergum is without a groove or excision. The base of the ovipositor is elongated and polished brown to black in color. The piercer is short, thick and slightly curved. The piercer is reddish in color, is gradually tapered from its base and extends to about the base of the fourth abdominal segment (fig. 3 *c*).

Length : body, 2,5 mm.; wings, 2,8 mm.

Type locality : Caffrerei.

Type probably in the Berlin Zoological Museum.

The specimens at hand are from Cape Province, Matjesfontein, S. Africa, 6-15.X.1918 and December 1928 (R. E. Turner).

Dorilas (Eudorylas) æmulus n. sp.

(Figs. 4 *a-d.*)

This species is most closely related to *D. aculeatus* (Loew). It is distinguished by having the fourth costal section of the wings equal to the third, the posterior trochanters of female with strong hairs below, the ovipositor more elongate and the male hypopygium smaller, without a basal cleft.

Female. — *Head* : Front broad, subshining black above and silvery pubescent. Faintly subshining above, gray pollinose below. Third antennal segment brownish yellow in ground color, faintly white pubescent. Third segment very long acuminate, the apex gradually tapering (fig. 4 *b*). *Thorax* : Grayish brown pollinose on the dorsum, cinereous on the sides. Propleura bare. Humeri and halteres yellow. Scutellum bare or nearly so. *Legs* : Trochanters yellowish brown. Very narrow bases and apices of femora yellow, otherwise black. Tibiae and tarsi chiefly yellow, the middle of the tibiae and the apices of tarsi discolored with brown. Posterior trochanters with several strong bristles near bases below (fig. 4 *c*). *Wings* : Entirely hyaline except for

the brown stigma which fills all of the third costal section. The third costal section is equal in length to the fourth and the two combined are equal to the length of the fifth. The $r—m$ crossvein is situated slightly beyond the basal third of the discal cell and the ultimate section of the fourth vein (M_{1+2}) is curved. *Abdomen* : Shining brown to black in ground color, brown pollinose on the dorsum and gray on the sides. Bristles on the sides of first tergum strong and black, abdomen otherwise nearly bare. Hind margin of sixth tergum not excised or grooved. Ovipositor well developed. Base polished black and elongated, piercer reddish yellow, curved upward and about equal in length to its base (fig. 4 d). The piercer extends just beyond, the apex of the second abdominal segment.

Length : body, 3,3-3,5 mm.; wings, 3,6-3,8 mm.

MALE. — The male specimen which apparently fits with the females at hand is in rather poor condition. The junction of the eyes is equal in length to the front triangle. The front is densely grayish pubescent. The dorsum of the thorax is more brownish pollinose. The posterior trochanters are densely white pubescent below and do not possess the bristles as in the female. The hypopygium is small and symmetrical with no membranous area. The hypopygium, from dorsal view is scarcely over one-half as long as the fifth tergum and the seventh tergum is plainly visible from above (fig. 4 *a*). The ventral structures of the hypopygium have not been studied.

Holotype female : Mossel Bay, Cape Province, S. Africa, 1-14.XI.1921, Acc. n° 1921-476. Allotype male : Natal, Van Reenen, Drakensberg, S. Africa, 1-22.I.1927, Acc. n° 1927-54 (R. E. TURNER). Three paratypes : one male, Ingogo, Natal, March 1932 (A. MACKIE); one male, Port St. John. Pondoland, 16-28.IV.1924 (R. E. TURNER) and one female, Cape Town, Milnerton, S. Africa, January 1926, Acc. n° 1926-71 (R. E. TURNER).

Holotype, allotype and one paratype returned to the British Museum. One paratype returned to the Commonwealth Institute and one paratype deposited in the U. S. National Museum Collection.

Dorilas (Eudorylas) æthiopicus n. sp.

(Figs. 5 *a-d.*)

This species is distinguished from all known *Dorilas* by the symmetrical hypopygium of the male and the very long acuminate third antennal segment. It appears most closely related to *parvifrons* (LOEW) but the front is normal in size and densely silvery pubescent. The humeri and knobs of halteres are yellow and the hypopygium without a cleft or depression, etc.

MALE. — *Head* : Junction of the eyes nearly two times longer than the length of the frontal triangle. Front and face silvery pubescent. Occiput entirely gray except for a small brown area right behind the ocellar triangle.

Occiput with several faint horizontal striations on upper portion. Labellum bright yellow, palpi brownish. The antenna is brown to black in color, very densely white pubescent. The third segment is very long acuminate, the apex is produced into a slender, slightly curved projection about egual in length to the remainder of the segment (fig. 5 *a*). *Thorax* : Densely brown pollinose on the dorsum, grayish on the sides. Scutellum with short, yellow, inconspicuous marginal hairs. Propleura bare. Humeri and halteres yellow. *Legs* : Coxae, trochanters and femora black, except for the narrow yellow tips of the latter. Tibiae yellow except for slight brownish median discolorations. The tarsi are yellow except for the brown to black apical subsegment. The posterior trochanters are densely white pubescent below. *Wings* : Lightly fumose. Stigma brown, filling nearly all of the third costal section. Fourth costal section one and one-half times longer than the third and equal in length to the fifth. The $r-m$ crossvein is situated at the basal one-third of the discal cell and the last section of the fourth vein is just slightly curved. *Abdomen* : Subshining in ground color, densely brown pollinose above and grayish on the sides, apical one-third to one-half of segment five lightly grayish. Abdomen slightly clavate, widest at segment five. Pile very sparse and short. *Hypopygium* : Symmetrical in shape, with no indication of a membranous area but with a very small basal cleft in middle (fig. 5 *d*). From dorsal view the hypopygium is about three-fourths as long as the fifth segment. From a lateral view the apex of the abdomen is strongly swollen, from this view the hypopygium is longer than the fifth segment. The seventh tergum is large and well developed on the left side, it is over half as long as the eighth. The sixth tergum is plainly visible on the left side (fig. 5 *b*). The coxopodite and harpagones are yellowish in color, the latter are very asymmetrical in shape. The inner harpago is the more elongate of the two and is visible on the left side (fig. 5 *b*), the outer harpago folds upward into the genital chamber and appears to be very broad and blunt. From the right side the coxopodite is approximately equal in size to the large eighth segment.

Length : body, 4,2 mm.; wings, 5,5 mm.

Female. — The front is much narrower than the face, is grayish pubescent on the sides and shining black down the middle. The elongated tip of the third antennal segment is straight, not slightly curved as in the male. The abdomen is normal in shape and the apices of each segment are gray pollinose. The base of the ovipositor is globose in shape and has a distinct tubercle below. The piercer is short and curved. It reaches just beyond the base of the fifth segment (fig. 5 *c*). Apical margin of sixth tergum straight, not excised or grooved.

Length : body, 3,5 mm.; wings, 3,7 mm.

Holotype male : Naivasha, Africa, July 1937 (H. J. A. Turner).

Allotype female : Cape Province, Somerset East, S. W. Africa, October 1930, Acc. n° 1930-561 (R. E. TURNER).

One paratype male, same data as type.

Type being returned to the Commonwealth Institute of Entomology. Allotype being returned to the British Museum. Paratype deposited in the U. S. National Museum.

Dorilas (Dorilas) albivillosus n. sp.

(Figs. 6 *a-c.*)

This species is distinguished from all known *Dorilas* by having the abdomen strongly clavate and densely covered with bristly hairs.

FEMALE. — *Head* : Front rather strongly narrowed above, at the narrowest point, just below the ocelli, it is about half as wide as that portion just above antennae. Upper one-fifth to one-fourth of front shining black, lower portion and all of face whitish pubescent. Sides of front with a line of microscopic hairs extending down each eye margin. Upper portion of occiput polished black, lower portion cinereous. Mouth parts and antennae bright yellow. Third antennal segment obtuse at apex and densely covered with long yellowish pubescence (fig. 6 *b*). Bristles of second segment yellow. *Thorax* : Mesonotum polished black in ground color, pleura brownish yellow. Propleura with a fan of long pale hairs. Humeri and halteres pale yellow. Mesonotum and scutellum lightly grayish pollinose. Sides and hind margin of mesonotum, thickly haired, dorsocentral hairs distinct. Scutellum densely covered with erect bristly white hairs. *Legs* : Entirely bright yellow, except for brownish front and middle coxae. All femora slender, the rows of spines near the apex below are very poorly developed. The hind trochanters are clothed with very fine yellow hairs below. *Wings* : Faintly fumose, stigma brown and occupying only the apex of the third costal section. The third section is about one-half as long as the fourth and the two sections combined are about equal to the length of the fifth section. The *r*—*m* crossvein is situated at the basal one-fourth of the discal cell, and the last section of the fourth vein is gently curved. The *m* crossvein is one-third longer than the last section of the fifth vein. *Abdomen* : Polished brownish black, very densely covered with white erect bristly hairs. Strongly clavate in shape, narrowest at base and broadest at segments four to six (fig. 6 *a*). The hind margin of the six tergum is straight. The base of the ovipositor is globose. The piercer is short and straight, scarcely equal to its short base in length (fig. 6 *c*) and extending to about the middle of the fourth segment.

Length : body, 3,7-4,0 mm.; wings, 4,9 mm.

MALE. — Unknown.

Holotype female : Baro, N. Nigeria, October 1910 (Dr. INGRAM).

Type returned to the Commonwealth Institute of Entomology.

Dorilas (Dorilas) angustifacies n. sp.
(Figs. 7 *a-c.*)

This species is related to *brevicornis* (Loew). It is distinguished by the chiefly opaque abdomen, yellow antennae, black humeri, dark colored wings and by the genitalia.

Male. — *Head* : Eyes joined right up to the ocellar triangle. The junction is equal to or longer than the frontal triangle. Front opaque, brown to black pubescent with a subshining median ridge running longitudinally for two-thirds its length. Face grayish pubescent, very narrow, at a midline the face is about half as wide as the front just above antennae. Third antennal segment yellow, short obtuse at apex (fig. 7 *c*). *Thorax* : Mesonotum densely brown pollinose, almost devoid of pile. Scutellum more lightly pollinose, faintly shining and with a few fine marginal hairs. Pleura yellow brown in ground color. Propleural fan of hairs present. Humeri black. Stems of halteres yellow, knobs brownish. *Legs* : Coxae brownish, trochanters yellow. Bases of femora broadly yellow, apices narrowly so, the median portions of femora brown to blackish. Tibiae brown medianly, apices and bases broadly yellow. First four subsegments of tarsi yellow, last subsegment brown to black. *Wings* : Dark brown fumose, the stigma filling all of the third section but scarcely darker than the membrane. The third section of the costa is about equal to the fourth in length and the two combined are nearly two times as long as the fifth. Crossvein r—m at basal one-third of discal cell. Last section of fourth vein (M_{1+2}) strongly curved. Crossvein m slightly curved in the middle and longer than the last section of the fifth vein (fig. 7 *a*). *Abdomen* : Chiefly opaque brown pollinose, apical one-fifth to one-sixth of the fifth segment polished black. The extreme apex of the fourth tergum is sometimes polished. The first tergum has a row of strong black hairs on each side. The remainder of the abdomen is nearly bare, with but very sparse pale pile. *Hypopygium* : Asymmetrical, developed to the right and with a small apical membranous area on the right side (fig. 7 *b*). The hypopygium is about three-fourths as long as the fifth segment, from dorsal view.

Length : body, 3,4 mm.; wings, 4,2 mm.

Female. — Unknown.

Holotype male : Cape Province, Somerset East, S. Africa, November 1930, Acc. n° 1930-593 (R. E. Turner). Two paratype males : one, same locality and collector as type, 23-31.XII.1930, Acc. n° 1931-61, and one, Obuasi, Ashanti, W. Africa, 27.XII.1907, Acc. n° 1908-245 (W. M. Graham).

Type and one paratype returned to the British Museum. One paratype deposited in the U. S. National Museum.

Dorilas (Dorilas) bellulus n. sp.
(Figs. 8 *a-b*, 55 *a*.)

This species is related to *D. bequaerti* (Curran). It differs by having the abdomen chiefly polished; the *r*—*m* crossvein situated near the middle of the discal cell and the male hypopygium with an apical membranous area.

Male. — *Head* : Junction of eyes about equal to the length of the frontal triangle. Front dark gray pubescent on upper two-thirds, silvery just above antennae. Face densely silvery pubescent, occiput cinereous. Mouthparts and antennae bright yellow. Third antennal segment acute at apex (fig. 8 *b*). *Thorax* : Mesonotum and scutellum shining black in ground color, densely covered with grayish brown pollen. Scutellum with some fine yellow hairs on the hind margin. Pleura chiefly brown to black. Pteropleura, lower hind corner of mesopleura and upper edge of sternopleura yellowish. Fan of hairs on propleura very conspicuous. Humeri and halteres yellow. *Legs* : Entirely yellow, except for the brownish front coxae. Femora moderately developed, tibiae not noticeably swollen in the middle. Hind trochanters with a few fine yellow hairs below. *Wings* : Light brown fumose, stigma dark brown and filling the third costal section. Third section about one-half as long as the fourth. The fifth section is equal in length to the third and fourth combined. Crossvein *r*—*m* located just before the middle of the discal cell. Ultimate section of the fourth vein slightly curved. *Abdomen* : Sides nearly straight, slightly widest at segment five. Entirely polished brown to black except for first tergum and very narrow base of second. First tergum with a row of long black hairs on each side, abdomen otherwise bare, or with but very few microscopic pale hairs. *Hypopygium* : Asymmetrical, compressed to the right and with a small apical membranous area, scarcely visible from dorsal view (fig. 8 *a*). Sixth tergum not visible from dorsal view.

Length : body, 4,8-5,0 mm.; wings, 6,0 mm.

Female. — The female specimen at hand is headless so the head characters of this sex have not been studied. In other respects, except for genital characters, it differs from the male only by having the sides of the abdomen distinctly yellowed. The females approach *abdominalis* (Loew) by having the sides of abdomen yellow but the ovipositors of the two species are very different. The sixth tergum is entirely black, it is not excised on its hind margin and the lateral margins are not produced. The base of the ovipositor is subelongate in shape and brown to black in color. The piercer, measured from base of vaginal orifice, is one and one-third times longer than the ovipositor base. It is straight and reaches just beyond the apex of the second abdominal segment (fig. 55 *a*).

Length : body, 3,5 mm.; wings, 5,0 mm.

Holotype male : Naivasha, July 1937 (H. J. A. Turner). Allotype female : Meru, Kenya, July 1943 (Van Someren). Four paratype males : one same data as type; two, same data as allotype and one, Ngong, May 1936 (Miss Steele).

Holotype, allotype and two paratypes returned to the Commonwealth Institute of Entomology. Two paratypes deposited in the United States National Museum.

Dorilas (Dorilas) bequaerti (Curran).

Pipunculas bequaerti Curran, 1929, Amer. Mus. Novit., 340 : 1.

This species is related to *læviventris* (Loew). It differs from that species, as recognized by this author, by having the abdomen almost entirely pollinose and nearly devoid of pile and by the much larger hypopygium.

Male. — *Head* : Junction of the eyes one and one-half times longer than the frontal triangle. Front and face silvery pubescent, occiput gray pollinose, brown above. Mouthparts and antennae bright yellow, the third antennal segment short acute. *Thorax* : Mesonotum and scutellum densely brown pollinose, the pleura are yellow brown in ground color dusted with brownish gray pollen. Propleura each with a fan of strong pale hairs, dorsocentral hairs distinct, scutellum with long dark hairs on the hind margin. Humeri, tegulae and halteres yellow. *Legs* : Yellow, except for the brownish coxae and apical subsegments of the tarsi. Posterior trochanters clothed with fine pale hairs below. Femora moderately stout, flexor bristles rather strong. Posterior tibiae strongly swollen medianly and each with three strong brown bristles on the outside of the swelling. The front and middle tibiae each possess a strong spur-like bristle at the apex. *Wings* : Brownish fumose, stigma dark brown and filling all of the third costal section. Third costal section one and one-third times longer than the fourth and almost as long as the fifth section. The *r*—*m* crossvein is at the basal one-third of the discal cell and the last section of the fourth vein is gently curved. *Abdomen* : First tergum entirely cinereous. Second tergum entirely brown pollinose, faintly subshining on the apical margin. Terga three to five opaque brown on the basal one-half to three-fifths, polished black on the apices and gray on the sides. Sides of abdomen nearly parallel. First tergum with a row of strong hairs on each side, other segments sparsely pilose. *Hypopygium* : Large and symmetrical, equal in length to the fifth abdominal segment and with no membranous area or cleft. The hypopygium is similar to that of *zululandicus* from a dorsal view (fig. 44 *b*) but is entirely opaque brown. The harpagones are elongate, equal in length to the coxopodite and curve upwards nearly at right angles near their middles. The coxopodite and harpagones are red in color.

Length : body, 6,0 mm.; wings, 7,0 mm.

FEMALE. — Unknown.

Type locality : Lubutu, Congo.

Type in the American Museum of Natural History.

The writer has studied the type.

Dorilas (Dorilas) brevicornis (LOEW).

(Figs. 9 *a-c.*)

Pipunculus brevicornis LOEW, 1857, Ofvers. of K. Vet.-Akad. Forhandl., 14 : 374.

The specimens at hand fit LOEW's description of *D. brevicornis* and are apparently that species.

The species is most closely related to *D. turneri* n. sp. but are readily distinguished by the small size, narrow discal cell and the straight ultimate section of the fourth vein.

FEMALE. — *Head* : Front broad, face very narrow, in the middle it is scarcely one-third to one-fourth as wide as the front just above antennae. Front and face gray pubescent along sides with a shining black median line running their entire length. Occiput chiefly cinereous, lightly brownish above. Labellum yellow, halteres and antennae brown. Third antennal segment small, slightly rounded at the apex (fig. 9 *a*). *Thorax* : Mesonotum and scutellum shining black in ground color, lightly grayish brown pollinose. Pleura yellow brown in ground color, dusted with gray. Propleura each with a fan of long pale hairs, scutellum chiefly bare. Humeri, tegulae and halteres yellow. *Legs* : Chiefly brown to black, except for the yellow apices of femora and tibiae, broadly yellow bases of tibiae and the yellow brown basal subsegments of the tarsi. *Wings* : Lightly fumose, stigma brown and filling nearly all of the third costal section. The third section is equal to slightly shorter than the fourth, and the two sections combined are one and one-half times longer than the fifth. The sixth costal section (apex of apical cell) is equal in length to the $r-m$ crossvein and the apical cell is rather narrow in the middle, its greatest width is not more than the length of the m crossvein. The $r-m$ crossvein is situated at the basal one-third of the discal cell and the last section of the fourth vein (M_{1+2}) is straight or nearly so (fig. 9 *c*). *Abdomen* : Chiefly polished brownish black, the first segment and anterior portion of the second grayish pollinose. Sides almost straight, abdomen slightly widest at about segment five. First tergum with a row of long black hairs on each side, other terga sparsely covered with moderately long erect hairs. Sixth tergum with a V shaped concavity on its hind margin extending half way through the segment.

Ovipositor : Base subglobose, polished brownish black. Piercer yellow, slender, slightly curved downward (away from abdomen) at its apex (fig. 9 *b*). The piercer extends to about the apex of the third abdominal segment.

Length : body, 2,3-2,5 mm.; wings, 3,0 mm.

Loew gave the length of body as 1 5/12 lines and wings 2 1/12 lines.

Male. — Unknown.

Type locality : Caffraria.

Type probably in the Berlin Zoological Museum. The specimens of the above described species were from Cape Province, Mossel Bay, June-July 1930 (R. E. Turner) and Natal, Weenen, 14.III.1925 (H. P. Thomasset).

Dorilas (Dorilas) calcaratus n. sp.
(Figs. 10 *a-c.*)

This species is related to *lubuti* (Curran). It is distinguished by the broad gray faciae of the abdomen and the very small third antennal segment. It differs from all known females in the genus by having the front strongly narrowed above. The seventh abdominal segment strongly developed and plainly visible and the front and middle tibiae with apical spurs.

Female. — *Head* : Front gradually narrowed from the antennae to the ocelli, the upper portion is scarcely wider than the median ocellus. Front, face and occiput entirely gray. Mouthparts and antennae bright yellow. Third antennal segment short acute, very small, scarcely larger than the second segment (fig. 10 *a*). *Thorax* : Mesonotum shining black in ground color, gray pollinose on the sides and anterior margin, brownish on the dorsum. Scutellum brownish gray pollinose, with a row of rather long pale hairs on the hind margin. Pleura chiefly brownish yellow, propleura with a fan of long yellow bristles. Humeri, tegulae and halteres yellow. *Legs* : Entirely light yellow except for discolored coxae. Femora moderately developed, flexor spines strong. Hind trochanters clothed with yellow hairs below. Hind tibiae swollen medianly and each with three strong yellow bristles on outer edge. The front and middle tibiae each possess a strong, yellow, apical spur (fig. 10 *b*). The hind tibiae have an apical comb of strong yellow bristles but no spur. The tarsal claws are elongate and strong. They are equal to the length of the first subsegment of the tarsus. The pulvilli are well developed, being nearly as long as the claws. *Wings* : Lightly fumose, stigma dark brown and filling all of the third costal section. Third section of costa just slightly shorter than the fourth section. Fifth section one and one-third times longer than the fourth. The $r-m$ crossvein is at the basal one-third to one-fourth of the discal cell and the last section of the fourth vein is strongly curved. The last section of the fifth vein is equal in length to the m crossvein. *Abdomen* :

Rather long and slender, entirely opaque, densely brown pollinose on the basal half to three-fourths of each tergum, gray on their apices. First tergum with a dense row of strong black hairs on each side, remainder of abdomen conspicuously covered with rather abundant erect hairs. Hind margin of sixth tergum straight, not excised. Seventh segment well developed and conspicuous, serving to elongate the base of the ovipositor. The seventh segment is divided into two plates by a longitudinal median cleft on the dorsum. The ovipositor is short, broad and strongly flattened dorsoventrally. The basal portion is tumescent and the anal opening is very large. The piercer is short and straight and extends to just beyond the apex of segment four (fig. 10 *c*).

Length : body, 5,0 mm.; wings, 6,5 mm.

MALE. — Unknown.

Holotype female : Gold Coast, Accra, 12.1.1915 (J. W. S. MACFIE).

Type returned to the British Museum.

Dorilas (Eudorylas) candidulus n. sp.
(Figs. 11 *a-b*.)

This species is related to *pallidipleura* (CURRAN) but is distinguished by its polished thorax, small stigma and distinctive wing venation.

MALE. — *Head* : Junction of the eyes about equal to three-fourths the length of the frontal triangle. Front and face densely silvery pubescent. Occiput cinereous below, polished black near ocelli. Mouth parts and antennae bright yellow. The third antennal segment is missing on the specimen at hand. *Thorax* : Very highly polished, with only a narrow line of gray pollen on each lateral margin and the front margin of the mesonotum. Mesonotum black, except for yellow lateral margins. Scutellum dark brown, pleura yellow to yellow brown. Propleura bare, mesonotum and scutellum with scattered pale hairs on the margins. Dorsocentral hairs distinct. Humeri and halteres bright yellow. *Legs* : Entirely pale yellow in color. Femora slender flexor spines weak. Posterior trochanters slightly swollen below and clothed with a few short pale hairs near bases. Posterior tibiae distinctly swollen in the middle. *Wings* : Very lightly fumose and elongate, compared to the length of the body. The stigma is short and occupies only the apex of the third costal section. The third section is only one-third to one-fourth as long as the fourth section and the fourth is nearly equal in length to the fifth. The sixth costal section (apex of apical cell) is as wide as the *r*—*m* crossvein. The *r*—*m* is located at the basal one-fourth to one-fifth of the discal cell and the last section of the fourth vein is straight. The *m* crossvein is about two times longer than the last section of the fifth vein and is equal or slightly longer than the greatest width of the apical cell (fig. 11 *a*). *Abdomen* : Highly polished black, slender

and slightly clavate in shape, broadest at the fifth segment. First tergum with a row of strong brownish hairs on each side, remainder of abdomen sparsely clothed with erect yellow hairs. *Hypopygium* : Asymmetrical, produced about one-half as long as the fifth abdominal segment and with a large apical membranous area (fig. 11 *b*). The hypopygium is chiefly polished but is densely white pubescent on the right side. The seventh tergum is scarcely visible from a dorsal view. The coxopodite is black and the harpagones yellowish brown in color, the latter are short and thick in shape.

Length : body, 5,0 mm.; wings, 6,4 mm.

FEMALE. — Unknown.

Holotype male : Naivasha, July 1937 (H. J. A. TURNER).

Type returned to the Commonwealth Institute of Entomology.

Dorilas (Dorilas) congoensis n. sp.
(Fig. 12 *a*.)

This species is related to *lubuti* CURRAN. It differs in having the body more lightly pollinose, hind corners of the mesonotum and anterior corners of scutellum yellow and the male hypopygium with an apical membranous area.

MALE. — *Head* : Junction of eyes equal in length to the frontal triangle. Front chiefly subshining, lightly grayish pubescent along sides. Face lightly grayish to silvery pubescent. Occiput polished black in ground color, the pollinosity is obscured by glue in the specimen at hand. Mouthparts yellow, antennae yellow-brown. Third antennal segment short acute, slightly rounded at apex very similar to that of *lubuti* (CURRAN) (fig. 27 *b*). *Thorax* : Chiefly subshining black, lightly brownish pollinose on the dorsum, grayish on the sides. Lateral margins of mesonotum yellow from the suture to the scutellum, hind corners of scutellum yellowish. Humeri, tegulae and halteres yellow. Propleura each with a fan of long white hairs, scutellum nearly devoid of pile. *Legs* : Entirely yellow, except for brownish coxae and apical subsegments of tarsi. Posterior trochanters with a few very short hairs beneath. Femora moderately stout, flexor spines strong. Posterior tibiae rather strongly swollen in the middle and with two large brown bristles on the swelling above. *Wings* : Lightly fumose, stigma dark brown, filling all of the third costal section. Third section very slightly longer than the fourth and nearly equal in length to the fifth. Crossvein $r-m$ located near the basal third of the discal cell and the ultimate section of the fourth vein is very strongly curved, similar to that of *lubuti* (fig. 27 *a*). *Abdomen* : Subshining, lightly grayish brown pollinose, clavate in shape, widest at segment five. Segment seven well developed and plainly visible from dorsal view. *Hypopygium* : Rather symmetrical in shape

but with a large apical membranous area, about equal in length to the fifth abdominal segment (fig. 12 *a*). The coxopodite (9th segment) is yellow in color, visible from dorsal view on the right side of the hypopygium. The harpagones are yellow-brown and appear to be slender and curved inwardly.

Length : body, 5,8 mm.; wings, 7,0 mm.

FEMALE. — Unknown.

Holotype male : Tshibinda, Belgian Congo, August 1931 (L. OGILVIE).

Type returned to the Commonwealth Institute of Entomology.

Dorilas (Dorilas) conspectus n. sp.

(Figs. 13 *a-b*.)

This species is related to *brevicornis* (LOEW), it is distinguished by the yellow third antennal segment, the brownish to black humeri, tegulae and halteres, shorter stigma, narrow apical cell, shorter ultimate section of the fifth vein and more distinctly fumose wings. The species is also larger in size.

MALE. — *Head* : Eyes joined on the front nearly to the median ocellus. The junction of the eyes is one and one-half times longer than the frontal triangle. Front and face silvery pubescent. Face narrow, about half as wide as the front at the antennae. Occiput polished black above, cinereous on sides and below. Third antennal segment yellow in color, obtuse, rounded at the apex (fig. 13 *a*). *Thorax* : Shining brown to black in ground color on the dorsum, yellowish brown on the sides. Mesonotum and scutellum brown pollinose, pleura grayish. Propleura with a fan of hairs, scutellum bare or nearly so. Humeri brownish to black, tegulae yellow-brown, halteres yellow with slightly brownish knobs. *Legs* : Coxae brown to black, trochanters yellowish brown. Femora chiefly black, with narrow bases and apices yellow. Tibiae with broad, dark, median bands, otherwise yellow. Tarsi yellowish except for the brown fifth subsegment. Posterior trochanters clothed with some fine pile beneath. Femora slender, flexor spines weak. Hind tibiae without strong bristles on outer side. *Wings* : Lightly brownish fumose, stigma brown and filling just the apical two-thirds of the third costal section. The third section is about equal in length to the fourth, and the two combined are over one and one-half times longer than the fifth section. The sixth section (apex of apical cell) is very narrow, scarcely half as long as the $r—m$ crossvein. The $r—m$ is situated at the basal one-third of the discal cell and the last section of the fourth vein is nearly straight. The m crossvein is one-third longer than the ultimate section of the fifth vein and is slightly longer than the discal cell is wide. *Abdomen* : Terga three to five polished black, bare of pollen, first tergum gray on the sides and brownish above, second tergum rather lightly

brownish pollinose. Abdomen almost devoid of pile except for the row of long black hairs on each side of the first tergum. Sides of abdomen straight. *Hypopygium* : Strongly developed, equal or slightly larger than the fifth abdominal segment; rather symmetrical in shape with a sub-apical membranous area and a longitudinal cleft on the right side (fig. 13 *b*). Sixth tergum not visible from a dorsal view.

Length : body, 3,0 mm.; wings, 3,8 mm.

FEMALE. — Unknown.

Holotype male : Ashanti, W. Africa, 11.VIII.1907, Acc. n° 1908-245 (W. M. GRAHAM).

Type returned to the British Museum.

Dorilas (Eudorylas?) cupreiventris BECKER.

(Fig. 14 *a*.)

Dorylas cupreiventris BECKER, 1914, Ann. Soc. Ent. France, 83 : 126.

Following are the diagnostic characters taken from BECKER's description :

MALE. — *Head* : Vertex shining black, front and face white. Eyes contiguous on the front. Antennae black, third segment acuminate. *Thorax* : Shining black, not pilose. Humeri yellow, halteres brownish yellow. *Legs* : Yellow, femora marked with black medianly. Last tarsal subsegment black. Posterior femora without flexor spines. *Wings* : Pale fumose, stigma dark. *Abdomen* : Polished, metallic-black, bare of pile. *Hypopygium* : Indistinctly divided, cleft small.

Length : body, 2,0 mm.

A male specimen at hand fits the above description except that the femora are entirely yellow and the scutellum is sparsely but distinctly pilose on the hind margin. The following additional notes are based upon this specimen : The head is missing. *Thorax* : The pleura are yellow brown to yellow in ground color, the tegulae are yellow. The propleura are bare. *Legs* : Entirely yellow except for brown coxae and apical subsegments of tarsi. Femora slender, flexor spines weak. Hind trochanters densely white pubescent below, hind tibiae without strong bristles on the outer sides. *Wings* : Stigma filling all of the third costal section. Third section just slightly longer than the fourth, the two sections combined are one and one-third times longer than the fifth. The $r-m$ crossvein is at the basal one-third of the discal cell and the last section of the fourth vein (M_{1+2}) is straight, or nearly so. The sixth costal section (apex of apical cell) is equal in length to the $r-m$ crossvein. *Abdomen* : Slightly clavate in shape, widest at segments four to five. First tergum with a row of strong black hairs on each side. Abdomen otherwise

very sparsely covered with fine sub-erect hairs. *Hypopygium* : Rather symmetrical in shape, with no membranous area but with a cleft extending from the base on the right side (fig. 14 *a*). The hypopygium is about three-fourths as long as the fifth segment and the seventh tergum is but slightly visible from a dorsal view.

Length : body, 2,5 mm.; wings, 3,9 mm.

Type locality : Naivasha, Uganda.

Type probably in the Berlin Zoological Museum.

The specimen described above was from Ashanti, W. Africa, 11.VIII.1907 (W. M. Graham).

Dorilas (Eudorylas) diversus n. sp.

(Figs. 15 *a-b*.)

This species is related to *D. evanidus* n. sp., it is distinguished by not having evanescent veins in the wing, by its shorter third costal section and its large quadrate male hypopygium.

Male. — *Head* : Junction of eyes equal in length to the frontal triangle, lower part of front gray pubescent, faintly shining in the middle. Face silvery, occiput cinereous. Labellum yellow, palpi and antennae brown. Third antennal segment moderately acuminate at its apex (fig. 15 *b*). *Thorax* : Black in ground color, brownish gray pollinose on the dorsum and gray on the sides. Propleura bare, scutellum bare or nearly so. Humeri and halteres yellow, tegulae black. *Legs* : Coxae, trochanters and femora black, except for extreme apices of the latter which are yellow. Tibiae yellow, tarsi chiefly so, the apical subsegments are brownish. The femora are moderately stout and the flexor spines are well developed. The posterior trochanters have a few fine hairs beneath. *Wings* : Very faintly fumose, stigma brown, filling all of the third section of the costa. Third section nearly two times longer than the fourth. The two sections combined are approximately equal to the fifth in length. The *r*—*m* crossvein is situated at the basal one-third of the discal cell and the last section of the fifth vein is nearly straight. The apical cell is very narrow at the wing margin, the sixth section of the costa being about half as long as the *r*—*m* crossvein. *Abdomen* : Entirely opaque, grayish brown pollinose on the dorsum, gray on the sides. Sides of abdomen straight, or nearly so, almost devoid of hair except for a row of short black hairs on each side of the first tergum. *Hypopygium* : Quadrate in outline, from a dorsal view, almost equal in size to the fifth segment (fig. 15 *a*) and with a very large apical membranous area. The seventh tergum is visible from a dorsal view. Harpagones and coxopodite yellow in color.

Length : body, 3,0-3,4 mm.; wings, 3,2-3,5 mm.

FEMALE. — Unknown.

Holotype male : Cape Province, Matjesfontein, S. Africa, 1-18.XII.1928, Acc. n° 1929-15 (R. E. TURNER). One paratype male : Capetown, Milnerton, S. Africa, January 1926, Acc. n° 1926-71 (R. E. TURNER).

Type returned to the British Museum. Paratype deposited in the U. S. National Museum collection.

Dorilas (Eudorylas) encerus n. sp.
(Figs. 16 *a-b*.)

This species appears to be related to *bellulus* n. sp. but belongs in a different subfamily. The bare propleura, black humeri, elongate third costal section and obtuse third antennal segment will distinguish it.

MALE. — *Head* : Junction of eyes equal in length to the frontal triangle. Front gray pubescent, except for a small shining black gibbosity in the middle. Face silvery, occiput chiefly cinereous, slightly subshining above. Mouthparts and third antennal segments bright yellow. First and second segments black. The third is rounded at apex (fig. 16 *b*) and densely yellow pubescent. *Thorax* : Shining black in ground color, brown pollinose on the dorsum, gray on the sides. Scutellum lightly grayish, faintly subshining and with rather numerous pale hairs on its hind margin. Propleura apparently bare (the head obscures this character in the type). Humeri black, halteres yellow. *Legs* : Entirely yellow, except for the brownish coxae and apical subsegment of tarsi. Posterior trochanters clothed with very fine pile beneath. Femora rather slender, flexor spines very strong. Posterior tibiae each with three strong bristles on outer side. Tarsal claws and puvilli small, not longer than the last subsegment of the tarsus. *Wings* : Slightly fumose, stigma brown and occupying all of the third costal section. Third section approximately two times longer than the fourth, the two sections combined are a little shorter than the fifth section. Crossvein $r—m$ situated just before the middle of the discal cell. Ultimate section of the fourth vein very faintly curved. Last section of the fifth vein equal in length to the m crossvein. *Abdomen* : Almost entirely polished black, pollinose only on the first two terga and the hypopygium. First to third segments yellowish on the sides, sternum yellow-brown. Sides of abdomen slightly rounded, widest at segments two to three. First tergum with a row of long hairs on each side, abdomen otherwise sparsely covered with short, erect hairs. *Hypopygium* : Less than one-half as long as the fifth abdominal segment, compressed to the right and with a large apical membranous area (fig. 16 *a*). The seventh tergum is not visible from a dorsal view.

Length : body, 3,2 mm.; wings, 4,1 mm.

FEMALE. — Unknown. A female specimen mounted on the same piece of cork with the above male is a very different species. It is a specimen of *D. mutillatus* (LOEW).

Holotype male : Nyasaland, Limbe, 10.XII.1916, Acc. n° 864 (R. C. WOOD).

Type returned to the Commonwealth Institute of Entomology.

Dorilas evanidus n. sp.

(Fig. 17 *a*.)

This species is related to *D. diversus* n. sp. but is distinguished by having vein R_5 and the petiole of the cubital cell fading out before the wing margin, by the very short fourth costal section of the wing and the dorsal cleft of the hypopygium.

MALE. — *Head* : Junction of eyes equal in length to the frontal triangle. Front brownish gray, face and occiput gray. Labellum yellow, palpi and antennae brown to black. The third antennal segment moderately acuminate, very similar to that of *diversus* (fig. 15 *b*). *Thorax* : Shining black in ground color, densely brownish pollinose on the dorsum, gray on the sides. The propleura are obscured by the head, they are very probably bare. The scutellum is bare or nearly so. The humeri and halteres are yellow, the tegulae are brown. *Legs* : Chiefly black, except for yellow apices of femora, apices and bases of tibiae and first three to four subsegments of the tarsi. The posterior trochanters are grayish pubescent and possess a few fine yellow hairs below. *Wings* : Lightly but distinctly fumose, stigma brown and occupying all of the third costal section. Third section three times longer than the fourth. The fifth section is one and one-third times longer than the third and fourth combined. The *r*—*m* crossvein is situated at the basal one-third of the discal cell and the last section of the fourth vein is straight. Vein R_5 (2nd vein) and the petiole of the cubital cell are very weak and fade out before the wing margin. The petiole (or indication of a petiole) of the cubital cell is approximately three-fourths as long as the *m* crossvein. *Abdomen* : Shining black in ground color, the polish is entirely obscured by grayish brown pollen on the dorsum and gray on the sides. Sides of abdomen nearly straight. First tergum with a row of strong black hairs on each side, abdomen otherwise very sparsely covered with short yellow hairs. *Hypopygium* : Well developed, asymmetrical, with a large apical membranous area which extends down the dorsum nearly to the base (fig. 17 *a*). The membranous area is raised into a small keel in the middle.

Length : body, 2,5 mm.; wings, 3,0 mm.

FEMALE. — Unknown.

Holotype male : Port St. John, Pondoland, S. Africa, 16-28.IV.1924, Acc. n° 1924-235 (R. E. TURNER).

Type returned to the British Museum.

Dorilas (Eudorylas) excisus n. sp.
(Figs. 18 *a-c.*)

This species is related to *mutillatus* (LOEW). The male hypopygium differs by having a large conspicuous membranous area at the apex, the sixth abdominal tergum is also exposed and plainly visible from above. The sixth tergum of the female is excised on the hind margin and the piercer is straight. The species is smaller in size.

MALE. — *Head* : Junction of the eyes slightly longer than the frontal triangle. Front gray pubescent, face silvery. The mouthparts and third antennal segments are yellow. The third segment is moderately acuminate in shape (fig. 18 *c*). *Thorax* : Mesonotum and scutellum grayish brown pollinose, pleura gray. Propleura bare, scutellum with but a few fine hairs along the hind margin. Humeri and halteres yellow. *Legs* : Legs yellow except for yellowish brown coxae, apices of tarsi and the pale brownish median discolorations on the femora. The posterior coxae are clothed with yellow pubescence and fine yellow pile below. *Wings* : Wings hyaline, stigma pale brown and filling all of the third costal section. Third section equal to just slightly longer than the fourth, the two sections combined are one and one-third times longer than the fifth. The *r—m* crossvein is just before the middle of the discal cell and the last section of the fourth vein is gently curved. The last section of the fifth vein is equal in length to the *m* crossvein. *Abdomen* : Almost bare, except for the lateral hairs of first tergum. Entirely opaque, chiefly brown pollinose on the dorsum and gray on the sides, apices of terga lightly fasciated with gray. Sides slightly rounding, widest at about segment three. *Hypopygium* : Asymmetrical, compressed to the right and with a longitudinal cleft on the right side (fig. 18 *b*) as well as an elongate membranous area at the apex. The sixth tergum is plainly visible from a dorsal view. The hypopygium as seen from above is approximately as long as the fifth abdominal segment.

Length : body, 3,2 mm.; wings, 4,0 mm.

FEMALE. — Front broad, chiefly gray pollinose, with a narrow shining black line extending down the middle from the ocellar triangle to the slightly gibbose area above the antennae. The scutellum and the margins of the mesonotum are more distinctly gray pollinose than in the males and the abdomen is chiefly gray, brown pollinose only at the bases of the terga. The sixth tergum has a V shaped excision on its hind margin, this extends about half the length of the segment. *Ovipositor* : The base is globose and short, the piercer slender and straight, extending just beyond apex of the third abdominal segment (fig. 18 *a*).

Length : body, 3,0 mm.; wings, 3,8 mm.

Holotype male and allotype female, on same pin : Ruo, Nyasaland, 5.IV. 1916, Acc. n° 493 (R. C. Wood).

Type and allotype returned to the Commonwealth Institute of Entomology.

Dorilas (Eudorylas) falcatus n. sp.
(Figs. 19 *a-b*.)

This species is related to *mutillatus* (Loew) but differs in having the third antennal segment acute, the legs more extensively black, the third costal section of the wings much longer than the fourth, the *r*—*m* crossvein situated nearer the base of the discal cell and the female ovipositor very strong and elongate.

Female. — *Head* : Front and face silvery pubescent, the former slightly shining above, near ocellar triangle. The face and front are equal in width to the ocellar triangle. The occiput is brown pollinose above and cinereous on the sides and below. The labellum is yellowish, the palpi and antennae dark brown. The third antennal segment is acute at apex (fig. 19 *b*). *Thorax* : Polished black in ground color, grayish brown pollinose on the dorsum and gray on the sides. The mesonotum is very faintly subshining. The propleura are bare, the scutellum is rather thickly clothed with short pale pile on the hind margin. The humeri, tegulae and halteres are yellow. *Legs* : Coxae and trochanters yellow-brown. Femora chiefly dark brown to black, front and middle femora with only extreme bases and apices yellow, hind femora broadly yellowed at bases and apices. Tibiae yellow, tarsi chiefly yellowish brown. Hind trochanters with numerous long yellow hairs below. Femora rather stout, flexor spines well developed. Hind tibiae without strong bristles on their outer sides. *Wings* : Hyaline, stigma dark brown and filling almost all of the third costal section. The third costal section is two to three times longer than the fourth and the two sections combined are equal to the length of the fifth. The *r*—*m* crossvein is situated at the basal one-third of the discal cell and the last section of the fourth vein is gently curved. The petiole of the cubital cell is two times longer than the *r*—*m* crossvein. *Abdomen* : Entirely opaque, chiefly brown pollinose on the dorsum and gray on the sides. The first tergum is entirely gray, the second is gray except for a large brown median spot on hind margin, the other terga are brown at bases, apices and in the middles but are partially dissected by a line of gray extending into them from each side. Sides of abdomen slightly rounding, widest at about segment four. First tergum with a row of strong black hairs on each side, abdomen otherwise rather sparsely covered with short erect hairs. Sixth tergum not excised on the hind margin. *Ovipositor* : Base very elongate and polished black. Piercer yellowish, stout, gradually tapering from its base and curved upward. The piercer extends nearly to the apex of the second segment (fig. 19 *a*).

Length : body, 4,5-5,0 mm.; wings, 5,0 mm.

MALE. — Unknown.

Holotype female : Obuasi, Ashanti, W. Africa, 31.VII.1907, Acc. n° 1908-245 (W. M. GRAHAM).

Type returned to the British Museum.

Dorilas flavicrus (RAPP).

(Fig. 20 *a*.)

Pipunculus flavicrus RAPP, 1946, Notulæ Naturæ, 178 : 1-2.

RAPP allies this species to *bequaerti* (CURRAN) but states that it « differs in the color of the coxae, a smaller stigma and the color of the occiput ». From the description it appears to be more closely related to *cupreiventris* (BECKER) and distinguishable by its larger size, brown to black humeri and yellow third antennal segment.

The following notes are from the original description :

MALE. — *Head* : Junction of eyes short. Front and face silvery pubescent, vertical triangle black. Occiput black with grayish pubescence. Mouthparts and third antennal segment yellowish. Third segment rather long accuminate (fig. 20 *a*). *Thorax* : Black in ground color, chiefly brown pollinose. Humeri brownish. *Legs* : Yellow, except for the black coxae and apical subsegments of tarsi. Pulvilli normal. *Wings* : Golden yellow fumose, stigma brown, filling all of the third costal section. Fourth section one and one-half times longer than the third. Fifth section about one and one-half times longer than the fourth. The *m* crossvein is at the basal one-third of the discal cell and the last section of the fourth is curved. The *m* crossvein is longer than the last section of the fifth vein. *Abdomen* : Shining black. Hypopygium cleft to the right.

Length : body, 4,0 mm.

FEMALE. — Unknown.

Type locality : Kijabe section, Kikuyu Escarpment, Kenya.

Type in Academy of Natural Science of Philadelphia.

The writer has not seen this species.

Dorilas (Eudorylas) flexus n. sp.

(Figs. 21 *a-e*.)

This species is related to *D. ruralis* (MEIGEN) of Europe and *D. subopacus* (LOEW) of North America. From a dorsal view the male hypopygium is identical with these species. The males differ from all known species in the genus by having an elongate appendage on each hind trochanter and the hind legs strongly bowed. The females are distinguished from related species by the small globose base of the ovipositor, short piercer, curved hind tibiae and yellow third antennal segment.

MALE. — *Head* : The junction of the eyes is shorter than the lower part of the front. Lower portion of front and face silvery pubescent, upper part of front and the ocellar triangle polished black. Occiput chiefly gray, lightly shining on the upper portion. Mouthparts and the third antennal segment yellow. Third segment moderately acuminate (fig. 21 *a*). *Thorax* : Shining black in ground color, brown pollinose on the dorsum and gray on the sides. The propleura are bare, the scutellum has a few fine hairs on the hind margin. The humeri and tegulae are yellow-brown to black, the halteres are yellow. *Legs* : Chiefly yellow, coxae brown to black, femora with broad brown to black rings. The hind trochanters each possess an elongate blunt appendage at apices below. The hind femora and tibiae are very strongly curved (fig. 21 *b*). The hind tibiae are not noticeably swollen medianly and possess no strong spines on the outer edges. *Wings* : Lightly fumose, stigma brown, filling nearly all of the third costal section of the wing. Third section slightly shorter than the fourth. The two sections combined are equal to the fifth in length. The $r-m$ crossvein is at the basal one-third to one-fourth of the discal cell and the last section of the fourth vein (M_{1+2}) is gently curved. *Abdomen* : Shining black in ground color, densely grayish brown pollinose on the dorsum, gray on the sides. First tergum with a row of black bristles on the sides, abdomen otherwise nearly devoid of pile. Sides of abdomen parallel. *Hypopygium* : Greatly developed, symmetrical in shape, with no membranous area or cleft. The hypopygium is about two times larger than the fifth segment and the seventh segment is well developed on the left side (fig. 21 *e*). The harpagones are yellow, long and slender, the inner harpago has a strong lateral lobe at its base.

Length : body, 3,4 mm.; wings, 3,2 mm.

FEMALE. — The front is broad, equal in width to the face. The lower half of the front is silvery pubescent, the upper half verges from subshining to polished black at the ocellar triangle. The brown to black rings on the femora are narrower than in the male. The hind trochanters are bare below and not armed with an appendage. The hind femora are straight and the hind tibiae are gently curved. The hind margin of the sixth tergum is not excised. The lateral margins of the sixth tergum extend around to the venter and form a receptacle for the ovipositor (fig. 21 *d*). The base of the ovipositor is globose, the piercer is short and straight, slightly longer than its base but scarcely extending beyond the apex of the fifth abdominal segment (fig. 21 *c*).

Length : body, 3,0 mm.; wings, 3,5 mm.

Holotype male : Okahandja, S. W. Africa, 1-12.I.1928, Acc. n° 1928-61 (R. E. TURNER). Allotype female, same locality and collector, 19-29.III.1927, Acc. n° 1928-53.

Both returned to the British Museum.

Dorilas fluviatilis (BECKER).

Pipunculus fluviatilis BECKER, 1900, Berl. Ent. Zeitschr., 45 : 224-225.

The following notes are from the original description :

The species is related to *pannonicus* (BECKER), it is distinguished by its longer third antennal segment, darker legs, densely pollinose genitalia of both sexes, the larger cleft of the male hypopygium and the more plump body.

MALE. — *Head* : Front gray. Antennae black, third segment short acuminate. *Thorax* : Opaque brownish black, humeri almost concolorous with the thorax. Stems of halteres yellow, knobs black. *Legs* : Chiefly yellow, femora with dark median bands and yellow apices and bases. Only the hind femora polished on the undersides and the flexor spines are weak. *Wings* : Stigma complete, the *r*—*m* crossvein is opposite the apex of the subcostal vein and the third and fourth costal sections are about equal. *Abdomen* : Coffee brown is color, with lighter yellowish gray bands which completely cover the the last two segments and are interrupted in the middle on the anterior segments. *Hypopygium* : Hemispherical in shape, slightly shining and with a small superficial rounded membranous area.

Length : body, 2,3/4-3,0 mm.; wings, 3,1/4-3,3/4 mm.

FEMALE. — Front narrow, entirely gray. Third antennal segment yellow. Base of ovipositor small, shining black, globose in shape. Piercer curved, yellow, somewhat longer than the base. The pulvilli and claws of the front legs are unusually large.

Type locality : Assiut, Egypt.

Type probably in the Berlin Zoological Museum. The writer has not seen this species.

Dorilas (Eudorylas) galeatus n. sp.

(Figs. 22 *a-b*.)

This species is related to *lubuti* (CURRAN), it is distinguished by its long acuminate third antennal segment and distinctive hypopygium.

MALE. — *Head* : Eyes joined on the front for a distance slightly greater than the length of the frontal triangle. Front brownish pubescent, face silvery, occiput chiefly gray. Third antennal segment bright yellow, long acuminate and very slender, more than three times longer than its greatest width (fig. 22 *b*) and densely yellow pubescent. *Thorax* : Shining black in ground color, the polish is entirely obscured on the mesonotum by brown pollen. Scutellum more lightly brown pollinose, faintly subshining, hind margin with a few short pale hairs. Propleura bare. Humeri and halteres yellow. *Legs* : Entirely yellow except for yellow-brown coxae. Posterior trochanters clothed with fine yellow pile below. Femora very slender, flexor spines weak. *Wings* : Light

brownish fumose, stigma dark brown and filling all of the third costal section. Third section slightly longer than the fourth and nearly as long as the fifth section. Crossvein *r*—*m* situated at the basal one-third of the discal cell and the last section of the fourth vein gently curved. *Abdomen* : Chiefly brown pollinose, lightly grayed on the sides. Sides of abdomen nearly parallel. First tergum with a row of strong black hairs on each side. Other segments with sparse sub-erect yellow hairs. Sixth segment plainly visible from dorsal view and extending three-fourths the distance across the dorsum (fig. 22 *a*). *Hypopygium* : Asymmetrical, with a large apical membranous area and a distinct keel arising from the membranous portion (fig. 22 *a*).

Length : body, 3,5 mm.; wings, 4,3 mm.

Female. — Unknown.

Holotype male : Port St. John, Pondoland, S. Africa, 1-15.IV.1924, Acc. n° 1924-213 (R. E. Turner). Two paratype males : One, same data as type and one, Congella, Durban Ntl., 20.II.1927 (L. Bevis).

Type returned to the British Museum. One paratype returned to the Commonwealth Institute and one deposited in the U. S. National Museum.

Dorilas (Eudorylas) inornatus n. sp.

(Figs. 23 *a-b*.)

This species is most closely related to *D. æthiopicus* n. sp., it is distinguished by the asymmetrical hypopygium with an apical membranous area, by the short fourth costal section of the wing and the bare hind trochanters.

Male. — *Head* : Eyes joined on the front for a distance equal to nearly twice the length of the frontal triangle. Frontal triangle and face densely gray pubescent. Occiput entirely cinereous, faintly subshining above. Antennae brown to black, third segment produced into a long bristle-like apex, this apex is about equal to the remainder of the segment (fig. 23 *a*). *Thorax* : Densely brown pollinose on the dorsum, gray on the sides. Propleura bare, scutellum with sparse, short marginal hairs. Humeri and halteres yellow. *Legs* : Coxae and trochanters brown to black, femora chiefly black, narrow bases and apices of hind femora and narrow apices of the mid and front femora yellow. Tibiae and tarsi yellow except for brownish apical subsegment. Each femur with two rows of short black spines below on apical one-third to one-half. Hind trochanters bare. *Wings* : Very lightly fumose, stigma dark brown and filling all of the third costal section. Third section equal in length to the fourth. The fifth section is nearly equal to the third and fourth combined. The *r*—*m* crossvein is at the basal one-third of the discal cell and the last section of the fourth vein is very slightly curved. *Abdomen* : Entirely opaque, densely brown pollinose on the dorsum, grayish on the sides. First tergum with a row of strong black hairs on each side, abdomen otherwise clothed with short very

scattered pile. *Hypopygium* : Asymmetrical in shape, nearly as long as the fifth tergum and with a large apical membranous area (fig. 23 *b*). The harpagones are very short and broad.

Length : body, 4,3-4,5 mm.; wings, 4,8 mm.

FEMALE. — Unknown.

Holotype male : Naivasha, July 1937 (H. J. A. TURNER). One paratype male, same data as type.

Type returned to the Commonwealth Institute of Entomology. Paratype deposited in the United States National Museum.

Dorilas katonæ (KERTESZ).

Pipunculus katonæ KERTESZ, 1907, Ann. Mus. Nat. Hung.. 5 : 581-582.

This species is distinguished from all other known species in the group by its distinctive hypopygium and wing venation. The following notes are from the original description :

MALE. — *Head* : Vertical triangle shining black, front and face silvery white pubescent. Eyes joined on the front. Antennae brownish black, third segment very long acuminate. *Thorax* : Dorsum and scutellum uniformly brownish gray, pleura grayish pollinose. Humeri brownish yellow, halteres reddish yellow, knobs brown. *Legs* : Chiefly black, apices of trochanters and femora reddish yellow. Tibiae reddish yellow with brown rings in the middle. Femora opaque grayish, innersides of posterior femora polished. Claws and pulvilli weakly developed. *Wings* : Pale brown fumose, stigma dark. Third costal section two times longer than the fourth, the two sections together are more than two times longer than the fifth. The *r*—*m* crossvein is behind the apex of the subcostal vein and at the basal one-third of the discal cell. *Abdomen* : Opaque black, with gray bands on segments one to four. The fifth segment is asymmetrical, developed toward the left and entirely brownish gray colored. *Hypopygium* : Asymmetrical, small and brownish gray. It is divided into two unequal portions, it is much more greatly developed on the right side than on the left, the left side is scarcely one-sixth as long as the right.

Length : body, 3,0 mm.; wings, 3,7 mm.

FEMALE. — Unknown.

Type locality : Moschi, East Africa.

Type in the Hungarian National Museum.

The writer has not seen this species.

Dorilas (Dorilas) læviventris (LOEW).

(Figs. 24 *a-b*.)

Pipunculus læviventris LOEW, 1857, Ofvers. of K. Vet.-Akad. Forhandl., 14 : 374.

The specimens at hand apparently belong to this species. They fit LOEW's brief description except that the antennae are yellowish with a faint brownish tinge instead of brownish black.

The species here described is related to *D. zululandicus* n. sp. but the abdomen is entirely black and is conspicuously clothed with suberect dark hairs. The third antennal segment is rounded at the apex, the front and middle tibiae possess apical spurs. The male harpagones are short and broad, not flattened laterally and the seventh tergum is scarcely visible from a dorsal view. The wing venation also differs.

MALE. — *Head* : Junction of eyes equal to the length of the front. Front and face gray pubescent. Occiput cinereous below and shining black above. The antennae are broken on the male specimen at hand. The first two segments are brownish yellow in color. *Thorax* : Mesonotum and scutellum shining black in ground color, densely brown pollinose. Pleura gray pollinose, black in ground color, except for brownish pteropleura. Propleura each with a fan of long pale hairs. Hind margin of scutellum clothed with an abundance of long dark hairs. Humeri and halteres yellow, tegulae yellow brown. *Legs* : Entirely yellow, except for the brownish coxae. Hind trochanters clothed with fine yellow pile below. Femora stout. Flexor spines strong, the spines are about equal to the width of each tibia at base. Posterior tibiae each swollen in the middle and with a strong spine on the outside of the swelling. Front and middle tibiae each with a strong spur at apex below. *Wings* : Light brown fumose, stigma dark brown, filling all of the third costal section. The third section is equal in length to the fourth. The two combined are one and one-half times longer than the fifth section. The $r—m$ crossvein is located at the basal one-third of the discal cell and the last section of the fourth vein (M_{1+2}) is but slightly curved. The m crossvein is longer than the ultimate section of the fifth vein (M_{3+4}) and the petiole of the cubital cell is shorter than the $r—m$ crossvein. *Abdomen* : Sides parallel, dorsum polished black, except for the grayish first tergum. Lateral margins of all terga and the sterna gray pollinose. Abdomen conspicuously clothed with short dark, suberect hairs. *Hypopygium* : Symmetrical in shape with no membranous area or cleft. Similar to that of *D. zululandicus* from dorsal view (fig. 44 *b*) but is only three-fourths as long as the fifth segment and the seventh segment is scarcely visible from this view.

The fifth tergum is not strongly developed to the right as in *zululandicus*. The coxopodite is dark brownish red to black and the harpagones are yellow. The latter are broad, thick and appear to be acute at apices.

Length : body, 5,5 mm.; wings, 6,0 mm.

Loew gave the length of the body as 2 1/2 lines and the wings 2 2/3 lines.

Female. — The front is broad, equal to or wider than the face and has a slight median ridge extending its entire length. Front entirely gray, except near ocullar triangle. The antennae are brownish yellow, the third segment is rather small and is rounded at the apex (fig. 24 *a*). The single bristle on the outside of each hind tibia is very strong, its length is equal to the greatest width of the femora. The front and middle tibiae have no apical spurs but they have two to three strong apical spines, as large as the median spine on the hind tibiae. The under portion of the abdomen is very densely gray pollinose. The abdomen is slightly clavate, widest at segment five. The sixth tergum has a small V shaped cleft on the hind margin. The base of the ovipositor short, brown to black and rather globose in shape. The piercer is short and straight, extending to about the apex of the fourth segment (fig. 24 *b*).

Length : body, 4,5 mm.; wings, 5,0 mm.

Type locality : Caffraria.

Type probably in the Zoological Museum of Berlin.

The specimens described above were from French Hoek, 40 miles from Capetown, S. Africa, November-December 1930 (H. W. Simmonds) and Cape Province, Sea Points, S. Africa, November 1931 (A. Mackie).

Dorilas (Eudorylas) liberia (Curran).

(Figs. 25 *a-b*.)

Pipunculus liberia Curran, 1929, Amer. Mus. Novit., 340 : 2-3.

This species is related to *D. æmulus* n. sp., it is differentiated by the long slender base and straight piercer, by the fasciated abdomen; the larger tarsal claws and pulvilli; the longer petiole of the cubital cell, oblique *m* crossvein and the narrow, chiefly subshining, front of the female.

Female. — *Head* : Front narrow, sides straight, grayish on lower portion subshining black on upper two-thirds. Front with a median ridge, extending its entire length. Face silvery white pubescent, occiput brown above and cinereous below. *Thorax* : Propleura bare, dorsocentral hairs weak, scutellum with just a few short hairs on the hind margin. Humeri and halteres yellow, tegulae black. *Legs* : Coxae black, trochanters brownish yellow. Femora black with narrow yellow tips. Tibiae chiefly yellow, with broad brown to black bands just beyond their middles. The first four subsegments of tarsi reddish yellow, apical subsegment black. The tarsal claws and pulvilli of the

front legs are very well developed, the claws are equal in length to the last four tarsal subsegments and the pulvilli equal to the last three. The posterior trochanters have long pale hairs beneath. The hind tibiae have no strong bristles on the outer edge. *Wings* : Hyaline, stigma brown, filling all of the third costal section. The third costal section is equal to the fourth in length and the two combined are just slightly longer than the fifth section. The *r*—*m* crossvein is situated at the basal two-fifths of the discal cell. Ultimate section of the fourth vein (M_{1+2}) very slightly curved, *m* crossvein oblique in position and very distinctly curved in the middle (fig. 25 *a*). *Abdomen* : Chiefly brownish black pollinose, very faintly shining, sides and narrow apices of segments grayish to grayish brown pollinose. Sixth tergum not excised on hind margin. Sides of first tergum with a row of long black hairs, abdomen otherwise bare. *Ovipositor* : Base brownish red, brown pollinose on the anterior portion and polished on the posterior three-fourths. Base very elongate, extending to the anterior margin of the fifth abdominal segment. The piercer is red in color, long slender and straight. It reaches to the apex of the first abdominal segment (fig. 25 *b*).

Length : body, 4,5 mm.; wings, 5,3 mm.

MALE. — Unknown.

Type locality : Paiata, Liberia.

Type in the American Museum Collection. The writer has studied the type.

Dorilas (Eudorylas) libratus n. sp.
(Figs. 26 *a-b*.)

This species is related to *mutillatus* (LOEW) but is distinguished by the brown fumose wings, the brown to black antennae, more extensively black femora and by the absence of an apical membranous area on the male hypopygium.

MALE. — *Head* : Junction of the eyes equal to or slightly longer than the frontal triangle. Front brown to black, opaque, slightly sunken in the middle just above antennae. Face dark gray pubescent, occiput cinereous, faintly shining above. Labellum yellow, palpi and antennae brown to black. Third antennal segment acute at apex (fig. 26 *a*). *Thorax* : Black in ground color, brown pollinose above and grayed on the sides. Propleura bare, scutellum with but a few inconspicuous hairs along the hind margin. Humeri yellow brown, knobs of halteres and tegulae brown. *Legs* : Coxae, trochanters, femora and last two subsegments of the tarsi chiefly brown to black, apices of femora narrowly yellowish. Tibiae and the basal joints of tarsi yellowish red. Posterior trochanters pubescent below. Femora rather slender, flexor spines weak, posterior tibiae without strong bristles on the outer sides. *Wings* : Light

brown fumose, stigma dark and filling all of the third costal section. Third section just slightly longer than the fourth and about three-fourths as long as the fifth section. Crossvein $r—m$ located near the middle of the discal cell and the last section of the fourth vein is almost straight. *Abdomen* : Black in ground color, densely pollinose. The terga are chiefly dark brown to black above, with brownish apices; the vitta is broad on the fifth tergum, occupying the posterior half of the sclerite. Abdomen broad, sides slightly rounded, widest at about segment three. First tergum with a row of stout black hairs on each side, abdomen otherwise nearly devoid of pile. *Hypopygium* : Well developed, about three-fourths as long as the fifth abdominal segment, slightly compressed to the right, with no apical membranous area but with a dorsal cleft on the right side (fig. 26 *b*). The seventh tergum is plainly visible from a dorsal view.

Length : body, 3,5-3,8 mm.; wings, 4,7 mm.

Female. — Unknown.

Holotype male : Mossel Bay, Cape Province, S. Africa, April 1921, Acc. n° 1921-210 (R. E. Turner). One paratype male, same locality and collector, 15-28.III.1922, Acc. n° 1922-153.

Type returned to the British Museum, paratype deposited in the U. S. National Museum Collection.

Dorilas (Dorilas) lubuti (Curran).

(Figs. 27 *a-c.*)

Pipunculus lubuti Curran, 1929, Amer. Mus. Novit., 340 : 1-2.

This species is related to *D. bequaerti* (Curran). It is distinguished by its entirely opaque abdomen, pointed hypopygium, darker brown fumose wings and strongly curved last section of the fourth vein.

Male. — *Head* : Junction of the eyes equal to the length of the frontal triangle. Front and face dark gray pubescent, very faintly subshining when seen in direct light. Lower portion of occiput cinereous, upper half dark brown pollinose. Mouthparts and antennae yellow. Third antennal segment short, acute, slightly rounded at apex (fig. 27 *b*). Bases of aristae yellow. *Thorax* : Shining black in ground color on the dorsum, brown to yellow brown on the pleura. Mesonotum and scutellum dark brown pollinose. pleura light brown. Propleura each with a fan of long pale hairs, dorsocentral hairs distinct, scutellum with fine brown hairs on the hind margin. Humeri and halteres yellow, the latter reddish at their tips. Tegulae brown. *Legs* : Entirely yellow except for the brownish coxae and apical subsegments of the tarsi. Posterior trochanters with fine yellow hairs below. Posterior tibiae swollen medianly and with three strong black bristles on the outside of the swelling. *Wings* : Light brown

fumose, stigma dark brown and filling all of the third costal section. The third section is slightly longer than the fourth and is about equal in length to the fifth section. The *r*—*m* crossvein is situated at the basal one-third of the discal cell and the ultimate section of the fourth vein is very strongly curved (fig. 27 *a*). *Abdomen* : Entirely opaque, first tergum and apical margins and sides of other terga cinnamon brown pollinose. Bases of terga two to four broadly black, faintly subshining in some light. The basal bands of terga two and three are produced in the middle almost to the apices of the segments. Sides of abdomen nearly straight. First tergum with a row of long black hairs on each side, other terga rather conspicuously haired on the sides, sparsely so on the dorsum. *Hypopygium* : Brown pollinose, large in size and symmetrical in shape tapering gradually to a blunt point at apex and without a membranous area or cleft (fig. 27 *c*). The hypopygium from dorsal view is slightly longer than the fifth abdominal segment. From a lateral view the sixth tergum is two times longer than the seventh. The coxopodite is brownish yellow, the harpagones are reddish yellow. The harpagones are about two times longer than their greatest width and are broad and rounded at their apices.

Length : body, 6,0-6,7 mm.; wings, 7,7 mm.

Female. — Unknown.

Type locality : Lubutu, Belgium Congo.

Type in American Museum of Natural History.

The writer has studied the type and has identified the species from Katanga, Dilolo, Belgium Congo, 24-27.VII.1931 (J. Ogilvie).

Dorilas (Eudorylas) meruensis n. sp.

(Figs. 28 *a-c*,).

This species is most closely related to *D. sinuosus* n. sp. but the eyes of the male are not so distinctly separated on the front and the hypopygium has an apical membranous area but no dorsal cleft.

Male. — *Head* : Eyes very narrowly separated on the front, this separation is marked as a thin shining black line extending from the ocelli to the frontal triangle. The lower portion of the front and the face is densely white pubescent. The occiput is entirely cinereous. The third antennal segment is small, acute at apex (fig. 28 *b*) and bright yellow in color. *Thorax* : Polished black in ground color, rather densely gray pollinose on the dorsum and on the sides. Scutellum minutely rugose, devoid of pile. Propleura bare. Humeri and halteres bright yellow. *Legs* : Femora black, except for extreme apices. Tibiae and first four subsegments of tarsi yellowish red, last subsegment of tarsus blackish. The femora of the mid and front legs are densely white pubescent on their hind surfaces. The inner sides of the hind femora are polished black. The femora otherwise lightly gray pollinose and are armed

with two rows of short stout spines on apical portions below. The posterior trochanters are densely white pubescent below and have several short yellow hairs arising from the pubescent area. *Wings* : Hyaline, except for the brown stigma which occupies nearly all of the third costal section. The third costal section is very slightly shorter than the fourth and the fifth section is longer than the third and fourth combined. The *r*—*m* crossvein is situated near the basal one-fourth of the discal cell and the ultimate section of the fourth vein (M_{1+2}) is slightly curved. The *m* crossvein is about one-fourth to one-third longer than the last section of the fifth vein. The width of the apical cell (cell R_5) at the wing margin is equal to the length of the *r*—*m* crossvein. *Abdomen* : Very broad and short, less than two times as long as wide, rounding on the sides, widest at segments three and four. Abdomen polished black in ground color with light gray pollen lightly obscuring the ground color on the basal one-half to three-fourths of the dorsal part of each tergum; sides distinctly gray pubescent. Abdomen clothed with very sparse, short pile, first tergum without a fan of hairs on each side. *Hypopygium* : Chiefly gray pubescent, rather symmetrical from dorsal view, slightly compressed to the right and with a moderately large apical membranous area, best seen from end view (fig. 28 *a*). The seventh tergum is plainly visible on the left side (fig. 28 *c*). The genitalia have not been dissected and the ventral structures are not visible for study.

Length : body, 6,0 mm.; wings, 7,3 mm.

FEMALE. — Unknown.

Holotype male : Meru, July 1943 (VAN SOMEREN). One paratype male, same data as type.

Type returned to the Commonwealth Institute of Entomology in London. The paratype deposited in the U. S. National Museum.

Dorilas (Eudorylas) mutillatus (LOEW).

(Figs. 29 *a-c.*)

Pipunculus mutillatus LOEW, 1857, Ofver. of K. Vet.-Akad. Forhandl., 14 : 374 (misspelled *mutilatus* by LOEW, 1860, Dipterenfauna Sudafrikas, I : 283 and by KERTESZ, 1909, Cat. Dipt., VI : 377).

The species here described fits LOEW's brief description of *mutillatus* and is probably that species. It is most closely related to *D. fluviatilis* (BECKER). It is best distinguished by the dorsal cleft on the male hypopygium and the straight, not excised, hind margin of the sixth tergum of the female.

MALE. — *Head* : Junction of the eyes equal to the length of the frontal triangle. Front and face densely silvery pubescent. Occiput entirely cinereous. Third antennal segment yellow to slightly brownish and acute to short acuminate at apex (fig. 29 *a*). *Thorax* : Brownish pollinose on the dorsum, gray on anterior margin and on pleura. Propleura bare, scutellum with scattered pale hairs on hind margin. Humeri and halteres yellow. *Legs* : Chiefly

yellow, femora with broad brown to black bands, their apices and bases are broadly yellow. Femora moderately developed, flexor spines rather strong. Hind trochanters with just a few short yellow hairs below. *Wings* : Very lightly fumose, stigma brown and occupying all of the third costal section. Third section of costa equal to slightly longer than the fourth section. The two sections combined are one and one-half times longer than the fifth. The *r*—*m* crossvein is situated just before the middle of the discal cell and the ultimate section of the fourth vein is straight or nearly so. *Abdomen* : Entirely opaque, chiefly brown pollinose, distinctly grayed on the sides and very lightly grayish along the apical margin of each tergum. Sides slightly rounded, abdomen broadest at segment three. First tergum with a row of strong black hairs on each side, the remainder of the abdomen very sparsely covered with short pale hairs. Hypopygium rather quadrate in shape, about three-fourths as long as the fifth segment. A distinct longitudinal cleft is present on the right side (fig. 29 *c*) and a small membranous area is located at the apex, the membranous area is not visible from a dorsal view.

Length : body, 3,8-4,3 mm.; wings, 5,0-5,5 mm.

Female. — The front is broad and entirely silvery. The third antennal segment is bright yellow and more acuminate than in the male. The broad median bands of the femora are less distinct and the apical margins of the abdominal terga are distinctly grayish. The base of the ovipositor is globose, the piercer is slender and slightly curved upward. The piercer reaches about to the base of the fourth segment (fig. 29 *b*). The hind margin of the sixth tergum is not excised.

Type locality : Caffraria.

Type probably in the Zoological Museum at Berlin.

Thirty five specimens have been studied from the following localities : Natal, Weenen, January to December 1923, 1924 and 1925 (H. P. Thomasset); Naivasha, July 1937 (H. J. A. Turner); Meru, March 1943 (Van Someren); Salisbury, S. Africa, May 1901 (F. L. Snow); Cape Province, Somerset East, September 1930 (R. E. Turner); Orange F. State, Harrismith, March 1927 (R. E. Turner); Port St. John, Pondoland, May 1923 (R. E. Turner); Nyasaland, Ruo, 5.IV.1916 (R. C. Wood) and Nyasaland, Limbe, 10.XII.1916 (R. C. Wood).

Dorilas (Eudorylas) natalensis n. sp.

(Figs. 30 *a-c*.)

This species is related to *diversus* n. sp. It is distinguished by the dark brown to black humeri and halteres, the chiefly black legs, poorly developed seventh tergum and differently shaped male hypopygium.

Male. — *Head* : Junction of the eyes equal to the length of the frontal triangle. Front dark gray to blackish with a polished black gibbosity in the middle above the antennae. Face and lower portion of occiput gray, upper

one-third of occiput light brown pollinose. Labellum yellow-brown, palpi and antennae dark brown. Third antennal segment moderately acuminate at the apex (fig. 30 *c*). *Thorax* : Black in ground color, brown pollinose on the dorsum, gray on the sides. Propleura bare, scutellum with no conspicuous hairs. Humeri, tegulae and halteres brown to black. *Legs* : Almost entirely black, narrow apices of femora and tibiae and bases of tibiae yellowish. Femora slender, flexor spines weak. Hind tibiae not greatly swollen medianly and without strong bristles on the outer side. *Wings* : Lightly fumose, stigma brown, filling all of the third costal section. The third section is two times longer than the fourth and the two combined are equal in length to the fifth section. The *r*—*m* crossvein is located at the basal one-third of the discal cell and the last section of the fourth vein (M_{1+2}) is nearly straight. *Abdomen* : Entirely opaque brownish black except for the lightly grayish sides and the first tergum. Sides slightly rounded, widest at about segment three. Sixth tergum very poorly developed, not visible in undissected specimens. Seventh tergum ventral in position, very small (fig. 30 *b*) and not visible from above. *Hypopygium* : About equal in length to the fifth abdominal segment, brown pollinose, faintly shining. Hypopygium with a very large apical membranous area, not visible from dorsal view, which occupies all of the apex and most of the venter of the eighth segment. The hypopygium is developed to the right and the hind margin is irregular (fig. 30 a). The coxopodite is black, the harpagones are yellowish brown, densely yellowish pubescent and apparently short and thick. The latter are mostly hidden in the genital chamber.

Length : body, 3,3 mm.; wings, 3,8 mm.

FEMALE. — Unknown.

Holotype male : Durban, Natal, Africa, Acc. n° 4457. One paratype male, Mt. Cameroon, Onyanga, 8.100 ft, 20.I.1932, Acc. n° 1934-240 (M. STEELE).

Type returned to the American Museum of Natural History, paratype returned to the Commonwealth Institute of Entomology.

Dorilas (Dorilas) obtusus n. sp.

(Figs. 31 *a-d.*)

This species is related to *D. bequaerti* (CURRAN). It is distinguished by the long third costal section, by having the *r*—*m* crossvein situated at the basal one-fourth of the discal cell, by the short acute black third antennal segment and the slightly discolored femora. The genitalia are also distinctive.

MALE. — *Head* : Junction of eyes about equal in length to the frontal triangle. Front gray pubescent on the sides, with a small shining black ridge running longitudinally down the middle. Face lightly gray pubescent, the polished black ground color shows plainly down the median portion. Occiput brownish pollinose above, gray on lower two-thirds. Antennae black. Third

segment short and obtuse at apex. The second segment possesses strong bristles above and below, on the under side some of these extend beyond the apex of the third segment (fig. 31 *c*). Third antennal segment densely covered with long whitish pubescence. *Thorax* : The mesonotum and scutellum are shining black in ground color and rather densely covered with brown pollen. The pleura are gray pollinose. The mesonotum is thinly pilose on the sides and the dorsocentral hairs are distinct. The scutellum has conspicuous pale hairs around the hind margin. The propleural fan of hairs is present. The humeri and stems of halteres are yellow, the knobs of halteres yellow-brown. *Legs* : Yellow, except for the brownish apical subsegments of the tarsi, the black coxae and for a line of brown running down the outer dorsal side of each femora. The femora are moderately stout, the front two pairs each possess two rows of short black spines on their apical two-thirds below. The front femora lack these spines. The posterior tibiae have three to five strong bristles on inner sides. The last subsegment of the tarsi bears three elongate bristles at their apices above. These are equal in length to the tarsal claws. *Wings* : Distinctly brownish fumose. Stigma brown, filling all of the third costal section. Third section three to four times longer than the fourth and about equal in length to the fifth section. The $r—m$ crossvein is located at the basal one-fourth of the discal cell. The ultimate section of the fourth vein (M_{1+2}) is slightly curved and the m crossvein is longer than the last section of vein M_{3+4} (fig. 31 *b*). *Abdomen* : First tergum densely gray pollinose, other terga brown pollinose, opaque on basal halves and subshining to polished black on apices. First tergum with a row of strong, yellow hairs on each side. Other segments with rather sparse pale pile, this is more abundant and longer on the sides. *Hypopygium* : Asymmetrical, with a large apical membranous area, from dorsal view the hypopygium is about half as long as the fifth segment (fig. 31 *d*). The harpagones are very broad and short, slightly pointed at inner apices (fig. 31 *a*). The coxopodite has a V shaped cleft on hind margin extending nearly half its length. The sixth tergum is nearly equal in size to the seventh, the sternal portion of the sclerite is greatly attenuated and very narrow.

Length : body, 5,0 mm.; wings, 5,5 mm.

Holotype male : Cape Province, Mossel Bay, S. Africa, March-April 1930, Acc. n° 1930-244 (R. E. Turner).

Type returned to the British Museum.

Dorilas (Dorilas) pallidipleura (CURRAN).

(Figs. 32 *a-b*.)

Pipunculus pallidipleura CURRAN, 1929, Amer. Mus. Novit., 340 : 2.

This species is related to *D. zululandicus* n. sp. but is readily distinguished by the very weak flexor spines of the hind femora; the more strongly swollen hind tibiae and the absence of bristles on this swelling; by the chiefly polished, strongly clavate abdomen and absence of the lateral combs on the first tergum; by the large well developed sixth tergum and the broad, short harpagones of the male.

MALE. — *Head* : Junction of eyes one and one-half times as long as the frontal triangle. Front and face silvery white pubescent, occiput cinereous on the sides and below, light brownish on the upper portion. Mouthparts and antennae yellow, third segment acute to short acuminate, similar to that of *zululandicus* (fig. 44 *a*). The swollen base of the arista is yellow. *Thorax* : Chiefly brown to black on the dorsum, yellowish on the sides of mesonotum and the entire pleura. Humeri, tegulae and halteres yellow. Propleura each with a strong fan of hairs, scutellum with inconspicuous brown hairs on the hind margin. *Legs* : Bright yellow, except for the brownish apical subsegments of tarsi. Posterior trochanters with short yellow hairs below. Femora rather slender, flexor spines weak, the hind femora have but three or four short spines on each side below. The hind tibiae are strongly swollen just before the middles, greatly attenuated at the bases. There are no strong bristles on the outside of the hind tibiae. *Wings* : Light brownish fumose, stigma brown and filling all of the third costal section. Third section equal in length to the fourth, the two sections combined are just slightly longer than the fifth. The *r*—*m* crossvein is located at the basal one-third of the discal cell and the last section of the fourth vein is gently curved. *Abdomen* : Clavate in shape, widest at the fifth segment and the hypopygium. Chiefly polished, first tergum entirely gray, other terga opaque brownish at their bases. Segments two to four translucent brownish red on the sides. Fifth, sixth and seventh terga black. Sixth tergum well developed, from a lateral view it is longer than the seventh (fig. 32 *a*). *Hypopygium* : Very large, symmetrical in shape and without a membranous area or cleft, the right side possesses a triangular indentation near the base. The hypopygium is equal in size to the fifth abdominal segment and the sixth and seventh terga are plainly visible from a dorsal view (fig. 32 *b*). The harpagones are short and broad, scarcely longer than wide and slightly rounded apically (fig. 32 *a*).

Length : body, 4,75 mm.; wings, 6,0 mm.

FEMALE. — Unknown.

Type locality : Mt. Ruwenzori, Congo.

Type in the American Museum of Natural History.

The writer has studied the type.

Dorilas (Dorilas) parvicornis n. sp.
(Figs. 33 *a-b*.)

This species is related to *D. bequaerti* (CURRAN) but is distinguished by the very tiny third antennal segment, the reddish brown anterior portion of abdomen, the short, thick harpagones and its smaller size.

MALE. — *Head* : Eyes joined on the front right up to the median ocellus. The length of the eye junction is one and one-half times greater than the length of the frontal triangle. Front chiefly gray pubescent, slightly swollen in the middle just above antennae, this tumid area is polished brown in color. The face is densely silvery pubescent, the occiput chiefly cinereous. The first two antennal segments are brown and normal in size. The third segment is yellow, blunt at apex and very small, it is scarcely larger than the second antennal segment (fig. 33 *a*). *Thorax* : Mesonotum and scutellum brownish gray pollinose, pleura grayish. Propleura each with a fan of strong bristles, scutellum with a few pale hairs on hind margin. Humeri and halteres yellow. *Legs* : Chiefly yellow, femora faintly discolored with brown; coxae brown to black. *Wings* : Lightly fumose, stigma dark brown and filling all of the third costal section. Third section equal in length to the fourth, the two combined are one and one-half times longer than the fifth section. The *r* — *m* crossvein is located at the basal one-third of the discal cell and the last section of the fourth vein is strongly curved. *Abdomen* : Sides of segments one to three faintly yellowish brown, abdomen otherwise black in ground color. Terga chiefly opaque, densely brown pollinose above, grayish on the sides, only narrow apices of segments two to four and the apical one-half to three-fifths of the fifth segment polished. Abdomen slightly rounded on the sides, widest at segment three. First tergum with a row of long black hairs on each side, abdomen otherwise sparsely but conspicuously clothed with short erect hairs. *Hypopygium* : Less than one-half the length of the fifth segment from dorsal view, compressed to the right and with a large apical membranous area (fig. 33 *b*).

Length : body, 4,0 mm.; wings, 5,0 mm.

FEMALE. — Unknown.

Holotype male : Nyasaland, Cholo (R. C. WOOD).

Type returned to the Commonwealth Institute of Entomology.

Dorilas (Eudorylas) parvifrons (LOEW).

(Figs. 34 *a-b*.)

Pipunculus parvifrons LOEW, 1857, Ofvers. of K. Vet.-Akad. Forhandl., 14 : 375.

In his supplementary description of this species (1) LOEW allies it to *P. aculeatus* LOEW. He distinguishes the male by its very narrow face and minute, chiefly subshining black, front and by the long slender, bristle-like apex of the third antennal segment.

A female specimen at hand apparently belongs to this species, this is the first description of this sex.

FEMALE. — *Head* : Front equal in width to the face, silvery pubescent on the lower one-fourth to one-third, velvety black on the upper portion. Front with a faintly shining median ridge extending nearly its entire length. The face is densely silvery pubescent, the occiput is cinereous on the sides and below and brown pollinose above. The labellum is yellow, the palpi and antennae are brown to black. The third antennal segment is produced at apex into a long bristle-like development. This is slightly longer than the third segment and is nearly one-half as long as the arista (fig. 34 *a*). *Thorax* : Black in ground color, brown pollinose on the dorsum, gray on the sides. Propleura bare, scutellum without noticeable pile. Humeri, tegulae and knobs of halteres brown to black. *Legs* : Femora narrowly yellowed at bases and apices, tibiae discolored with black on their apical halves. Hind trochanters with several long black hairs below, mid coxae each with a moderately strong bristle at apex below. Femora stout, flexor spines strong. Hind tibiae swollen in the middle, each with a fairly strong bristle on the outside of the swelling. *Wings* : Hyaline, stigma dark brown and occupying only the apical three-fourths of the third costal section. Third section equal to just slightly longer than the fourth. The two sections combined are equal to the length of the fifth section. The *r*—*m* crossvein is just a little beyond the basal one-third of the discal cell and the last section of the fourth vein is gently curved. *Abdomen* : Entirely opaque, densely pollinose. The first tergum is gray, the membranous portion of the first segment is brown. The second tergum is entirely gray except for a large median brown spot on hind margin. The third and fourth terga are brown on the dorsum and gray on the sides. The fifth and sixth terga are chiefly gray, brown at their bases and each with a brown vitta down the middle. The sixth tergum is not excised on the hind margin. *Ovipositor* : The base is elongated, black in ground color, gray pollinose on anterior portion and polished near anal

(1) Dipteren-Fauna Sudafrikas, 1860, I : 284.

opening. Piercer reddish in color, short and stout, slightly curved upward. The piercer extends nearly to the base of the second abdominal segment (fig. 34 *b*).

Length : body, 3,8 mm.; wings, 4,5 mm.

Loew gave the male length as : body, 1 1/2 lines; wings, 1 5/6 lines.

Type locality : Cap. B. Sp. Type probably in the collection of the Berlin Zoological Museum. The female specimen described above was from Obuasi, Ashanti, W. Africa, 26.VIII.1907 (W. M. Graham).

Dorilas (Eudorylas) porrectus n. sp.

(Figs. 35 *a-b*.)

This species belongs in the *aculeatus* complex but differs from all known species by having the third antennal segment very small and porrect in position. The polished spot on the front, the black humeri and halteres and almost entirely black legs will distinguish it from related species.

Male. — *Head* : Junction of the eyes equal in length to the frontal triangle. Front velvety black, except for a brightly polished median spot which extends dorsally into a thin black line. Face dark gray pubescent, occiput cinereous. Antennae brownish black. Ventral bristles of the second segment longer than the third segment. Third segment about one and one-half times longer than second, rounded at apex and directed straight out from the head (fig. 35 *b*). *Thorax* : Black in ground color, densely brown pollinose on the dorsum and grayish on the sides. Propleura bare, hind margin of scutellum with but a few fine hairs. Humeri, tegulae and halteres dark brown to black. *Legs* : Almost entirely black, only extreme apices of femora and tibiae yellowish. Posterior trochanters whitish pubescent below. Femora rather slender, flexor spines very weak. Hind tibiae with no strong bristles on outer edges. *Wings* : Brownish fumose, stigma dark brown and filling all of the third costal section. Third section approximately two times longer than the fourth. The two sections combined are equal to the length of the fifth. The $r-m$ crossvein is situated just before the middle of the discal cell and the ultimate section of the fourth vein is gently curved. *Abdomen* : Broad and rounded on the sides, widest at segments two to three. Dorsum chiefly brown pollinose, apices of segments narrowly gray vittate. *Hypopygium* : Small and rather symmetrical, scarcely one-third as long as the fifth segment (fig. 35 *a*) and with a large apical membranous area, this is visible only in end view. Seventh tergum not visible from dorsal view.

Length : body, 4,0 mm.; wings, 4,8 mm.

Female. — Unknown.

Holotype male : Obuasi, Ashanti, W. Africa, 29.IX.1907, Acc. n° 1908-245 (W. M. Graham).

Type returned to the British Museum.

Dorilas (Eudorylas) pusillus n. sp.
(Fig. 36 *a*.)

This species is related to *D. mutillatus* (Loew), it is distinguished by the fumose wings, brown to black antennae, chiefly black femora and the absence of a dorsal cleft on the male hypopygium. It differs from *D. diversus* n. sp. by having the *r*—*m* crossvein near middle of the discal cell, the third costal section shorter, the frontal triangle of male more elongated and the sides of abdomen rounded.

Male. — *Head* : Junction of the eyes about equal to length of the frontal triangle. Front black, faintly shining, with an indistinct shining black line extending along each eye margin. Face dark gray pubescent with a faint subshining median line extending the entire length. Occiput polished black above, cinereous below. Mouthparts brown, antennae brown to black. Third antennal segment moderately acuminate (fig. 36 *a*). *Thorax* : Black in ground color, brown pollinose on the dorsum, gray on the sides. Propleura bare, scutellum with short pale hairs along the hind margin. Humeri yellow, halteres brownish yellow, tegulae black. *Legs* : Tibiae and tarsi yellow, except for brownish discolorations near apices of tibiae and for the brown apical subsegments of the tarsi. Legs otherwise black except for narrow yellow apices of femora. Femora moderately stout, flexor spines strong. Posterior tibiae swollen medianly and each possess two or more strong black bristles on their outer side. *Wings* : Lightly fumose, stigma light brown and filling all of the third section of the costa. The third section of the costa just slightly longer than the fourth. The fourth section is one-half as long as the fifth. Crossvein *r*—*m* situated near the middle of the discal cell and the last section of the fourth vein is distinctly curved. *Abdomen* : Entirely opaque, brown pollinose on the dorsum and lightly grayish on the sides. Sides rounded, abdomen widest at segment three. First tergum with a row of strong black hairs on each side, abdomen otherwise sparsely covered with short pale hairs. *Hypopygium* : Large, well developed, quadrate in shape and equal to the length of of the fifth abdominal segment. The hypopygium, from dorsal view is similar to that of *D. diversus* n. sp. (fig. 15 *a*), but the seventh tergum is scarcely visible. The harpagones and coxopodite are black, the former appear to be very short and blunt.

Length : body, 3,5-4,0 mm.; wings, 4,2-4,7 mm.

Female. — Unknown.

Holotype male : Natal, National Park, S. Africa, March 1932 (A. Mackie). Type returned to the British Museum.

Dorilas (Eudorylas) quadratus n. sp.
(Fig. 37 *a*.)

This species is related to *D. libratus* n. sp. but is readily distinguished by its small size, lightly fumose wings, gray front, and the presence of an apical membranous area on the male hypopygium.

MALE. — *Head* : Junction of the eyes longer than the frontal triangle. Front densely gray pubescent, face silvery. Occiput entirely gray pollinose. Labellum bright yellow, palpi and antennae brown to black. Third segment acute at apex, very similar to that of *libratus* (fig. 26 *a*). *Thorax* : Black in ground color, brownish pollinose on the dorsum, gray on the sides. Propleura bare, scutellum nearly devoid of pile. Humeri, tegulae and halteres yellow. Tibiae and first four subsegments of tarsi yellow, except for slight median discolorations on the hind tibiae; legs otherwise brown to black, except for narrow yellow bands on the extreme bases of hind femora and apices of all femora. Femora slender, flexor spines moderately developed. *Wings* : Very lightly fumose, stigma brown and filling all of the third costal section. Third costal section equal in length to the fourth. The two sections combined are about one and one-half times longer than the fifth. The $r—m$ crossvein is situated at about the basal two-fifths of the discal cell. Last section of the fourth vein (M_{1+2}) straight or nearly so. *Abdomen* : Entirely brown pollinose on the dorsum, lightly grayish on the sides. Abdomen slender, sides nearly parallel. First tergum with a row of strong hairs on each side, abdomen otherwise nearly devoid of pile. *Hypopygium* : Nearly quadrate in shape, well developed, equal in length to the fifth abdominal segment and with a longitudinal cleft on the right side and an apical membranous area. The sixth tergum is visible from a dorsal view (fig. 37 *a*).

Length : body, 2,5 mm.; wings, 3,3 mm.

FEMALE. — Unknown.

Holotype male : E. Cape Province, Katberg, S. Africa, 4.000 ft., December 1932, Acc. n° 1933-69 (R. E. TURNER).

Type returned to the British Museum.

Dorilas (Dorilas) reconditus n. sp.
(Figs. 38 *a-b*.)

This species is related to *D. abditus* n. sp. and is distinguished by its acuminate third antennal segment, discolored femora and differences in the wing venation.

FEMALE. — *Head* : Broad from the antennae to above the middle, slightly narrowed on upper portion near the ocelli. Lower portion of front silvery, upper one-third to one-half polished black, with a median shining line exten-

ding down through the opaque area to just below the middle of the front. Front with a row of fine pale hairs extending down each eye margin. Face, densely silvery pubescent, occiput cinereous below, subshining black, lightly dusted with brown on the upper portion. Third antennal segment bright yellow, sharply pointed at apex and densely yellowish pubescent (fig. 38 *b*). *Thorax* : Polished black in ground color, the polish is almost obscured by dense brown pollen on the dorsum and gray on the sides. The dorsocentral hairs are distinct. The propleura each have a fan of strong pale hairs and the scutellum is densely yellow haired on its hind margin. The humeri and halteres are yellow, the tegulae are black. *Legs* : Chiefly yellow, except for the brownish coxae and apical subsegments of the tarsi and the brownish discolorations extending along the dorsal surface of each femur. The hind trochanters are clothed with fine yellow pile beneath. The femora are moderately stout, the flexor spines are weak. The posterior tibiae each have three or four strong bristles on their outer sides near the middle. *Wings* : Lightly brownish fumose, stigma brown and filling all of the third costal section. The third section is two times longer than the fourth and about equal in length to the fifth. The *r* — *m* crossvein is at the basal one-fourth of the discal cell and the last section of the fourth vein is strongly curved. *Abdomen* : Shining black in ground color, brown pollinose on bases of segments and lightly grayish, faintly shining on the apices; sides of segments distinctly gray. Sides of abdomen covered with rather long dense yellow hairs, the anterior portion of the abdomen is more pilose than is the posterior part. The dorsum has conspicuous short, erect hairs. The hind margin of the sixth tergum is not excised. *Ovipositor* : The base is elongate and black in color. The piercer is short, straight and yellowish red, it extends to about the middle of the fourth abdominal segment (fig. 38 *a*).

Length : body, 4,5-5,0 mm.; wings, 5,5 mm.

MALE. — Unknown.

Holotype female : Cape Province, Mossel Bay, S. Africa, 15.III-20.IV.1932. Acc. n° 1932-240 (R. E. TURNER).

Type returned to the British Museum.

Dorilas ruralis (MEIGEN).

Pipunculus ruralis MEIGEN, 1824, Syst. Beschr. der bekannten Europ. Zweifl. Ins., 4 : 22-23.

Pipunculus terminalis STROBL., 1894, Dipt. Steyerm., 3.

Pipunculus arimosus BECKER, 1900, Berl. Ent. Zeitschr., 45 : 221.

The writer has not seen this species from Africa but other workers have recorded it from North Africa. It is possible that these earlier records were actually of *D. flexus* n. sp. The two species are so closely related that they

could be confused unless examined carefully. *D. ruralis* has been adequately described by SACK (1) and just the distinguishing characteristics will be pointed out here.

The species will for the most part fit the description of *D. flexus* n. sp. The antennae will be very similar to figure 21 *a* and the male genitalia in dorsal view will appear like figure 21 *e*. The species belongs to a complex which have the male hypopygium greatly enlarged, symmetrical and bladder shaped with no membranous area or cleft. The females have the sixth tergum strongly developed around the venter so that the lateral margins form a tight groove or receptacle for the ovipositor to fit into. The species is distinguished from *D. flexus* n. sp by having the hind trochanters unarmed, the hind femora and tibiae straight, the antennae brownish black and the base of the female ovipositor cone shaped.

Length : body, 3,0 mm.

Type locality : Described from Europe, no locality given.

Location of type not known. The species is widely distributed in Europe, BECKER has recorded it from Tunisia, North Africa.

Dorilas (Eudorylas) setiformis n. sp.

(Figs 39 *a-b*.)

This species is related to *D. umbrinus* (LOEW), it is distinguished by the very long slender bristle-like apex of the third antennal segment, by the vestiture of the abdomen and the entirely yellow legs.

FEMALE. — *Head* : Front narrow, scarcely half as wide as the face. Front entirely silvery except for a shining black median line that extends a short distance below the median ocellus. Face and occiput cinereous. Mouthparts and antennae yellow. Third antennal segment with the apex produced into a very long seta-like projection. This is about equal in length to the arista (fig. 39 *b*). *Thorax* : Mesonotum chiefly black in ground color, lateral margins, scutellum and pleura yellowish. Mesonotum opaque brownish gray dusted. Propleura bare, scutellum with numerous short yellow hairs on hind margin. Humeri and halteres yellow. *Legs* : Entirely yellow, except for the brownish yellow front and middle coxae. Femora slender, ventral spines distinct. Hind trochanters white pubescent below. *Wings* : Entirely hyaline, except for dark brown stigma that fills all of the third costal section. The third costal section is equal in length to the fourth and nearly equal to the fifth. The *r—m* crossvein is at the basal two-fifths of the discal cell and the last section of the fourth vein is very strongly curved. The last section of the fifth vein is one and one-third times longer than the *m* crossvein. The *m* crossvein is slightly curved in

(1) *Die Fliegen der Palæarkt. Reg.*, 1935, 4 (32) : 38.

the middle. *Abdomen* : Densely dusted with brownish gray, sides slightly rounding, widest at segments three and four. First tergum with a row of strong black hairs on the sides, abdomen otherwise densely clothed with short, suberect pale hairs. Hind margin of sixth tergum without a furrow or cleft. Base of ovipositor rather elongate, piercer short, slender and very slightly curved upwards (fig. 39 *a*). The piercer extends just beyond the middle of the fourth segment.

Length : body, 5,0 mm.; wings, 6,0 mm.

MALE. — Unknown.

Holotype female : Mt. Mlanje, Nyasaland, 25.XI.1912 (S. A. NEAVE).

Type returned to the Commonwealth Institute of Entomology.

Dorilas (Eudorylas) sinuosus n. sp.

(Figs. 40 *a-c.*)

This large, unusual species is readily distinguished from all other known *Dorilas* by having the compound eyes distinctly separated on the front, by its distinctive genitalia and the very sinuous fourth vein of the wing. It is most closely related to *D. meruensis* n. sp. which has the eyes more indistinctly separated on the front.

MALE. — *Head* : Eyes separated for approximately the width of the medium ocellus. Upper one-half of the front shining black, lower half and entire face densely white pubescent. Occiput rugose and subshining black above, lower portion cinereous. The third antennal segment is brownish yellow in ground color and densely white pubescent. Third segment obtuse at apex (fig. 40 *a*). *Thorax* : Mesonotum and scutellum shining black in ground color, rather densely brownish gray pubescent. Scutellum with numerous short yellow hairs along its hind margin. Pleura cinereous, propleura bare. Humeri and halteres light yellow. *Legs* : Femora black in ground color, except for the narrow yellow apices. Tibiae and tarsi chiefly yellow, tibiae slightly discolored with brown medianly. The front and middle femora are densely white pubescent on their hind surfaces and the hind femora are polished black below. The hind trochanters are densely white pubescent and yellowish pilose below. *Wings* : Very faintly fumose, stigma brown and not quite filling all of the third section of costa. Third costal section slightly longer than the fourth, the two sections combined are but little over half as long as the fifth section. The *r*—*m* crossvein is at the basal one-third of the discal cell and the fourth vein (M_{1+2}) is very strongly curved beyond the *r*—*m* crossvein. The curve upward of that section of the fourth vein between the *r*—*m* crossvein and the *m* crossvein greatly narrows the basal two-fifths of the apical cell and enlarges the apical portion of the discal cell. The last section of the fifth vein is about three-fourths as long as the *m* crossvein (fig. 40 *c*). *Abdomen* : Polished black in ground color rather lightly brownish gray pollinose on the

dorsum and densely gray pubescent on the sides. Narrow apices of each tergum bare of pollen. Abdomen rather thickly covered with short erect pale pile, lateral bristles of first tergum strong and black. Abdomen somewhat clavate in shape, narrowest at the base and widest at segment five. *Hypopygium* : Very strongly developed, nearly one and one-half times longer than the fifth segment, drawn out into a blunt point at apex and with a very broad membranous area on the dorsum extending from apex to base (fig. 40 *b*). Seventh tergum scarcely visible from dorsal view. The ventral structures have not been studied.

Length : body, 6,0-6,2 mm.; wings, 5,0-5,4 mm.

Female. — Unknown.

Holotype male : Umbilo, Durban, 22.XI.1916, Acc. n° 1461 (L. Bevis). One paratype male, same locality and collector as type, 24.V.1914.

Type returned to the Commonwealth Institute of Entomology. Paratype deposited in the U. S. National Museum.

Dorilas trochanteratus (Becker).

Pipunculus trochanteratus Becker, 1900, Berl. Entom. Zeitschr., 45 : 221-222.

This species is related to *D. ruralis* (Meigen). It is distinguished by having the male hypopygium not so greatly developed and with an asymmetrical division down the dorsum, also by the fine bristles on the hind trochanters of the males, the globose base of the female ovipositor and the short dark colored piercer of the female.

The following notes were taken from the original description :

Male. — *Head* : Front lightly grayish subshining black in ground color. Antennae black, third segment acuminate. *Thorax* : Opaque black. Halteres yellowish brown. *Legs* : Chiefly black, apices of femora, bases and apices of tibiae and basal subsegments of tarsi yellow. Posterior trochanters with black bristles below. *Wings* : Yellow-brown fumose. The *r*—*m* crossvein is behind the apex of the subcostal vein. The third costal section is equal to slightly shorter than the fourth. *Abdomen* : Concolorous, subshining black, last segment yellow-gray pollinose on the sides. *Hypopygium* : Large and broad, without a membranous area or cleft but with an asymmetrical furrow extending from base to apex.

Length : body, 2,5 mm.; wings, 2,8 mm.

Female. — The front is broad, shining black above and gray just above the antennae. The last abdominal tergum without a concavity or furrow. The base of ovipositor is black and globose in shape. The piercer is very short and straight, dark in color.

Type locality : Assiut, Luxor, Egypt.

Type probably in Berlin Zoological Museum.

The writer has not seen this species.

Dorilas (Eudorylas) turneri n. sp.
(Figs. 41 *a-b*.)

This species appears to be related to *D. brevicornis* (Loew). It differs from the species recognized as *brevicornis* by being of larger size, having the propleura bare, the humeri black, the ultimate section of the fourth vein strongly curved and the apical cell broad. The male genitalia distinguish it from all known species.

Male. — *Head* : Junction of eyes equal to the length of the frontal triangle. Front silvery pubescent on the sides, shining black down the middle. Face entirely silvery. Occiput chiefly cinereous, faintly subshining above near ocelli. Labellum and palpi brownish yellow. Antennae black, third segment acute (fig. 41 *a*), dark pubescent. *Thorax* : Mesonotum and scutellum brownish gray pollinose, nearly devoid of pile. Pleura grayish dusted. Humeri brown to black in ground color. Halteres with yellow stems and brownish knobs. *Legs* : Coxae and trochanters brown to black. Apices and bases of femora yellow, the remainder of legs black. Tibiae and first four subsegments of tarsi yellow, apices of tarsi brown to black. *Wings* : Entirely hyaline except for the dark brown stigma which fills all of the third costal section. The third section of costa is about equal to the fourth in length and the two combined are equal to the fifth section. The *r*—*m* crossvein is at the basal one-third of the discal cell and the ultimate section of the fourth vein is strongly curved. The *m* crossvein is one-third longer than the last section of the fifth vein. *Abdomen* : Polished black except for brownish gray first segment, broad brown pollinose base of second and very narrow brown base of third. The abdomen is broad and short, widest at segments three and four. *Hypopygium* : Cinereous above, very tiny, symmetrical and without a visible membranous area or cleft. From dorsal view the hypopygium is approximately one-fourth as long as the fifth abdominal segment. The seventh tergum is plainly visible from dorsal view (fig. 41 *b*). The coxopodite and harpagones are yellowish, the latter are very short and broad.

Length : body, 4,0 mm.; wings, 4,3 mm.

Female. — Unknown.

Holotype male : Capetown, Milnerton, S. Africa, January 1926. Acc. n° 1926-71 (R. E. Turner).

Type returned to the British Museum.

Dorilas (Eudorylas) umbrinus (Loew).
(Figs. 42 *a-d.*)

Pipunculus umbrinus Loew, 1857, Ofvers. of K. Vet.-Akad. Forhandl., 14 : 374.

Specimens are at hand which fit Loew's description very well and since the species is so distinctive it is probable that the one here described is correctly determined.

The species is most closely related to *setiformis* n. sp., it is distinguished by the shorter apex of the third antennal segment, the nearly bare abdomen, slightly discolored femora and very different genital structures.

Male. — *Head* : Junction of the eyes about equal to the length of the frontal triangle. Lower part of front silvery pubescent with a faint shining black median line at the top of the triangle. Upper portion of the front subshining black. Face gray-white pubescent, occiput cinereous. Mouthparts yellow, antennae yellowish brown in ground color. Third segment produced at apex into a long bristle-like development. This is slightly longer than the third segment and approximately half as long as the arista (fig. 42 a). *Thorax* : Brown pollinose on the dorsum, gray on the sides. Propleura bare, scutellum with fine pale hairs on the hind margin. Humeri and stems of halteres yellow, tegulae and knobs of halteres brown. Legs chiefly yellow, coxae and last subsegment of tarsi brown, femora lightly discolored with brown medianly. Front and middle tibiae with strong apical spurs below, all tibiae with a strong bristle on their outer side just beyond the middle. *Wings* : Very lightly fumose, stigma light brown, filling all of the third costal section. The third costal section is equal in length to the fourth and the two combined are just slightly longer than the fifth section. The *r*—*m* crossvein is situated just before the middle of the discal cell and the ultimate section of the fourth vein is gently curved. *Abdomen* : Densely grayish brown pollinose on the dorsum and gray on the sides. The first tergum has a row of long black hairs on each side, abdomen otherwise almost devoid of pile. Sides of abdomen parallel or nearly so. Sixth and seventh terga plainly visible from a dorsal view. *Hypopygium* : Very strongly developed and asymmetrical, with no membranous area but with a small longitudinal depression on the left side. The hypopygium is one and one-half times longer than the fifth abdominal segment (fig. 42 *c*). Coxopodite and harpagones yellow, the latter very irregular in shape. In the undissected specimen they are moderately long and slender and thickly pilose, the inner harpago appears to have a well developed lateral lobe at its base.

Length : body, 4,0 mm.; wings, 4,6-4,8 mm.

Female. — This is the first description of a female that has been associated with the male. Becker (1) described what he thought to be the female from

(1) *Berl. Entom. Zeitsch.*, 1900, XLV : 245.

Peru. His species is being discussed below. The front of the female is equal in width to the face, it is grayish on the lower one-fourth and subshining black above. The upper part of the front has a narrow, more intensely black median ridge extending down to the gray portion. The third antennal segment is more yellow in ground color than the male. The tibiae have no apical spurs but have several strong bristles at their apices below. The middle coxae each have a very strong black bristle at the apex. The sixth segment of the abdomen is not excised on the hind margin. The base of the ovipositor is bilobed, from a dorsal view it is divided into two portions by a median longitudinal cleft (fig. 42 *d*). The base is black in ground color, densely gray pollinose and finely pubescent. From a lateral view the base appears globose in shape. The piercer is very short, yellow in color and slightly curved upward (fig. 42 *b*). The piercer does not extend as far as the base of the fifth segment.

The female described by BECKER from Peru was a very different species from that described above, in another publication the writer is proposing the name *Dorilas peruensis* n. n. for BECKER's species. *Dorilas umbrinus* BECKER, *nec* LOEW differs by having the apex of the third antennal segment as long as the arista; front narrow; abdomen subshining, segments gray fasciated; the base of ovipositor not bilobed and the piercer straight.

Type locality : Caffraria.

Type probably in Berlin Zoological Museum. The above described specimens were from Mossel Bay, Cape Province, August 1921 and July-August 1930 (R. E. TURNER).

Dorilas (Eudorylas) vicarius n. sp.

(Figs. 43 *a-b*.)

This species is related to *lubuti* (CURRAN). It is distinguished by having the last section of the fourth vein straight, by having the propleura bare, by its smaller size, opaque grayish brown body and very differently developed hypopygium.

MALE. — *Head* : Junction of the eyes one and one-third times longer than the frontal triangle. Front and face gray, occiput chiefly so, subshining only on upper portion. Third antennal segment yellow, densely covered with pale pubescence and short acuminate in shape (fig. 43 *a*). *Thorax* : Dorsum densely grayish brown pollinose, pleura yellow-brown in ground color and lightly gray dusted. Propleura bare, scutellum with just a few short hairs on its hind margin. Humeri and halteres yellow. *Legs* : Entirely yellow except for brownish coxae and apical subsegment of tarsi. Femora slender, flexor spines very poorly developed. Posterior trochanters clothed with numerous fine hairs below. Middle coxae each with two strong black bristles at apices on anterior margin. *Wings* : Lightly fumose, stigma light brown and filling all of the

third costal section. Third costal section equal in length to the fourth, the two sections combined are one and one-half times longer than the fifth section. The *r*—*m* crossvein is slightly beyond the basal third of the discal cell and the last section of the fourth vein is straight. *Abdomen* : Entirely opaque, densely brownish pollinose on the dorsum and lightly grayish on the sides. Sides rounding, abdomen widest at segment three. First tergum with a row of strong black hairs on each side, abdomen otherwise nearly devoid of pile. *Hypopygium* : Asymmetrical, developed to the right and with a moderately large subapical membranous area. Seventh tergum plainly visible from a dorsal view. Hypopygium as long as the fifth abdominal segment (fig. 43 *b*). The genitalia have not been dissected and the ventral structures have not been studied.

Length : body, 4,0 mm.; wings, 5,3 mm.

FEMALE. — Unknown.

Holotype male : Nyasaland, Cholo (R. C. WOOD).

Type returned to the Commonwealth Institute of Entomology.

Dorilas (Dorilas) zululandicus n. sp.

(Figs. 44 *a-b*.)

This species is related to *pallidipleura* (CURRAN), it is distinguished by the strong flexor spines on the femora and the strong bristles on the posterior tibiae; by having the abdomen chiefly opaque on the dorsum, polished on the sides. The first tergum with a fan of strong hairs on each side and the sides of the abdomen nearly straight; by having the sixth tergum smaller than the seventh from a lateral view and the harpagones rather slender and elongated. The third costal section of the wing is longer and the *r*—*m* crossvein nearer to the wing base than in *pallidipleura*.

MALE. — *Head* : Junction of the eyes slightly longer than the front. Front and face silvery pubescent, occiput chiefly cinereous. The occiput and lower portion of face rather densely pale pilose. The mouthparts and antennae are bright yellow. The third antennal segment is acute to short acuminate at apex (fig. 44 *a*). *Thorax* : Ground color of the dorsum brown to black, that of the pleura yellow to brownish yellow. Propleura with a fan of pale hairs, scutellum with numerous pale hairs on its hind margin. Humeri, tegulae and stems of halteres yellow, knobs of halteres brownish yellow. *Legs* : Entirely yellow, posterior trochanters clothed with some very short yellow pile beneath. Femora moderately stout, hind pair with a row of twelve or more strong flexor spines on each side below, the spines are as long as the tibiae are wide at their bases. Hind tibiae slightly swollen in the middle, their outer edges armed with several strong bristles. *Wings* : Light brown fumose, stigma dark, filling all of the third costal section. Third section nearly two times longer than the fourth and about equal to the length of the fifth. Crossvein *r*—*m* situated at

the basal one-fourth of the discal cell and the last section of the fourth vein (M_{1+2}) strongly curved. The *m* crossvein is longer than the last section of the fifth vein (M_{3+4}) and the petiole of the cubital cell is very short, scarcely equal to the length of the *r*—*m* crossvein. *Abdomen* : Polished on the sides, lightly pollinose on the dorsum. Segments one to four yellow on the sides, brownish on the dorsum. Segment five dark brown to black. Abdomen very slightly clavate, widest at segment five. First tergum with a row of strong black hairs on each side, other segments rather sparsely pilose. *Hypopygium* : Symmetrical, nearly globose in shape, with no membranous area or cleft. From dorsal view it is nearly as long as the fifth abdominal segment. The seventh segment is well developed and plainly visible from above (fig. 44 *b*). The coxopodite and harpagones are yellow, the latter are flattened laterally and rounded at their apices, they are apparently three to four times longer than wide.

Length : body, 6,0 mm.; wings, 6,6 mm.

FEMALE. — Unknown.

Holotype male : Zululand, Eshowe, S. Africa, 6-31.I.1926, Acc. n° 1926-232 (R. E. TURNER).

Type returned to the British Museum.

Beckerias ACZEL.

Beckerias ACZEL, 1939, Zool. Anzeiger, 126 : 192.

This genus is distinguished from *Dorilas* by lacking the first anal vein in the wing. This vein is represented only by a faint indication of a vein and sometimes a short appendix at the wing base.

Genotype : *Beckerias pannonicus* ACZEL.

The following characters separate the only known species of the world :

Male hypopygium with a moderately large apical membranous area, with a keel in the center; third antennal segment acuminate; anal vein completely lacking, the stigma brown (Africa) ..... *inchoatus* n. sp.

Male hypopygium with a very small, subapical membranous area and no keel. Third antennal segment acute; anal vein represented by a short appendix at the wing base, the stigma pale (Hungary) ..... *pannonicus* ACZEL.

Beckerias inchoatus n. sp.

(Figs. 45 *a-c.*)

This species is related to *B. pannonicus* ACZEL.

MALE. — *Head* : Junction of the eyes equal in length to the frontal triangle. The front and face are densely silvery pubescent, the occiput is entirely cinereous. The antennae are brownish yellow, the third segment is short acuminate at its apex (fig. 45 *a*). *Thorax* : Mesonotum and scutellum densely

grayish brown pollinose, pleura lightly grayed. Propleura with a fan of long dark hairs. Scutellum bare or nearly so. Humeri dark brown to black, halteres yellow. *Legs* : Yellow, except for brownish yellow coxae and the broad black median bands of the femora. Hind coxae white pubescent below. *Wings* : Very lightly fumose, stigma brown and filling all of the third costal section. Third section one and one-half times longer than the fourth and the fifth section one and one-half times longer than the third. The *r*—*m* crossvein is at the middle of the discal cell and the last section of the fourth vein is gently curved. The anal vein is completely lacking in the specimen at hand, only a faint indication of the vein is left (fig. 45 *b*). *Abdomen* : Short and broad, rounding at the sides, widest at segment three. Segments three to five polished black on the dorsum. The first tergum brownish in the middle and gray on the sides. The second tergum is entirely brownish pollinose, faintly subshining. The first tergum has a fan of long black hairs on each side, abdomen otherwise sparsely covered with erect pale hairs. *Hypopygium* : Rather symmetrical with a subapical membranous area and a small protuberance in the middle of the area (fig. 45 *c*). The harpagones are rather slender, the inner harpago appears (in the undissected specimen) to be pointed at the apex and the outer is blunt.

Length : body, 3,0 mm.; wings, 4,4 mm.

Female. — Unknown.

Holotype male : Nyasaland, Cholo (R. C. Wood).

Type returned to the Commonwealth Institute of Entomology.

Dorylomorpha Aczel.

Tömösváryella (*Dorylomorpha*) Aczel, 1939, Zool. Anzeiger, 125 : 22.

This genus as recognized by this writer includes those species having no stigma in the wing: the *r*—*m* crossvein situated near the basal one-fifth of the discal cell; the eyes of the male dichoptic; the abdomen strongly swollen posteriorly, clavate in both sexes, especially from a lateral view; the third costal section very short, compared to the fourth; the hind margin of the compound eyes curved inward on the upper half so that the occiput is more broad and swollen above.

Genotype : *Dorylomorpha rufipes* (Meigen).

Pipunculus nitidifrons Becker evidentally belongs to this genus and represents the only known African species.

Dorylomorpha nitidifrons (BECKER).

Pipunculus nitidifrons BECKER, 1900, Berl. Ent. Zeitschr., 45 : 241.

The writer has not seen this species, the following notes were taken from the original description.

FEMALE. — *Head* : Front broad, chiefly shining black, gray just above antennae. Antennae black, third segment long acuminate. *Thorax* : Opaque brownish black, humeri black. *Legs* : Chiefly black, apices of femora and tibiae, bases of tibiae and first four tarsal subsegments yellow. *Wings* : Stigma absent, *r*—*m* crossvein situated at the basal one-fifth of the discal cell. The fourth costal section is two and one-half times as long as the third section and the fifth section is twice as long as the fourth. *Abdomen* : Shining black on the dorsum, distinctly gray pollinose on the sides. Last segment with an excision on the posterior margin. *Ovipositor* : The base is large and oblong, the piercer is short, straight and sharply pointed, about equal to the base in length.

Length : body, 2,0 mm.; wings, 2,5 mm.

MALE. — Unknown.

Type locality : Cairo, Egypt.

Type probably in the Berlin Zoological Museum.

Tömösváryella ACZEL.

Tömösváryella ACZEL, 1939, Zool. Anzeiger, 125 : 22-23.

This genus, as defined by this writer, is distinguished by having no stigma in the wings. The *r*—*m* crossvein situated near the middle of the discal cell, except in *speciosus* n. sp., which has it near the basal one-third of the wing; eyes of males joined for at least a short distance on the front, except in *frontata* (BECKER); the abdomen not strongly enlarged posteriorly and the eyes not incurved on the hind margin above.

Genotype : *Tömösváryella sylvatica* (MEIGEN) (*Pipunculus*).

KEY TO SPECIES OF *TÖMÖSVARYELLA*.

1. Crossvein r-m situated at or near the middle of the discal cell 2
— Crossvein r-m at basal one-third of the discal cell ..... *speciosa* n. sp.
2. Males 3
— Females 13
3. Eyes joined for at least a short distance on the front 4
— Eyes distinctly separated on the front ..... *frontata* (BECKER).

4. Hypopygium symmetrical, without a distinct cleft or depression. Abdomen conspicuously covered with short somewhat recumbent hairs 5

— Hypopygium asymmetrical with a conspicuous membranous depression or cleft. Abdomen almost bare, very sparsely pilose 6

5. Hind trochanters each with a trapezoid development beneath (fig. 52 *b*) ..... *subvirescens* (LOEW).

- Hind trochanters each with a triangular projection below ..... *vicina* (BECKER).

6. Hind trochanters each with a sharp pointed projection below, near bases and a distinct carina near apices (fig. 46 *c*) ..... *africana* n. sp.

- Trochanters without sharp pointed processes and usually without carinæ 7

7. Hypopygium strongly compressed laterally, with a very large keel extending from base around the apex (figs. 50 *b-c*). Posterior trochanters bare and with a small keel below . ... *propria* n. sp.

Hypopygium not compressed laterally, with no such keel. Hind trochanters with pubescence or hairs below 8

8. Hypopygium with an apical projection extending from the membranous area, this projection is as long as the remainder of the hypopygium (fig. 49 *a*) ... *gibbosa* n. sp.

Hypopygium without such a development 9

9. Front with a pointed triangular impression in the middle ..... *mutata* (BECKER).

Front without such an impression 10

10. Hypopygium with a very large membranous area which occupies most of the dorsum and apical portion fig. 53 *d* . Harpagones broad and rounded at apices (fig. 53 *c*). *varana* n. sp.

Hypopygium not as above 11

11. Hypopygium with a vertical cleft on the dorsum ..... *disjuncta* (BECKER).

Hypopygium with an apical membranous area 12

12. Halteres black. Fifth costal section one and one-half times longer than third and fourth combined. Last section of fifth vein equal in length to the m crossvein. Front entirely silvery white (North Africa) ..... *cilifemorata* (BECKER).

Halteres yellow. Fifth costal section two times longer than third and fourth combined. Last section of fifth vein only three-fourths as long as the m crossvein. Front yellowish white (South Africa) ..... *apicalis* n. sp.

13. Abdomen conspicuously haired 14

— Abdomen naked or with but inconspicuous scattered hairs 19

14. Abdomen distinctly gray pollinose on the sides 17

— Abdomen without gray on the sides 15

15. Last tergum with a median cleft at apex. Piercer short, broad and curved ..... *frontata* BECKER.

– Last tergum without a distinct cleft. Piercer slender and straight 16

16. Base of ovipositor oval, with a swelling below (fig. 46 *b*). Pile of abdomen short and closely appressed ..... *africana* n. sp.

— Base of ovipositor elongate, with no swelling below (fig. 47 *a*). Pile of abdomen long and erect ..... *anomala* n. sp.

17. Third antennal segment yellow. Front entirely gray. Crossvein r-m slightly before middle of the discal cell ..... *vicina* (BECKER).
— Third segment brownish to black. Front polished black on upper portion. Crossvein r-m at middle of the discal cell 18

18. Base of ovipositor small. oval; piercer slender and straight, equal in length to the base. Front femora each with two strong bristles below at bases ..... *subvirescens* (LOEW).
— Base of ovipositor large and elongated; piercer short and thick, curved downward. Front femora without strong bristles ..... *frontata* (BECKER).

19. Piercer straight, extending to base of second abdominal segment. Front femora each with two strong bristles below near bases ..... *varana* n. sp.
— Piercer either curved or not so elongated. Front femora without such bristles. 20

20. Piercer straight, very short 21
— Piercer distinctly curved 22

21. Third antennal segment and halteres black. Hind femora with a row of long black hairs beneath (North Africa) ..... *cilifemorata* (BECKER).
— Third antennal segment brick red, halteres yellow. Hind femora with only fine short hairs below, near apex (South Africa) ..... *claripennis* (LOEW).

22. Piercer long, strongly curved upward ..... *mutata* (BECKER).
— Piercer not elongated, curved downward ..... *disjuncta* (BECKER).

Tömösváryella africana n. sp.

(Figs. 46 *a-c*.)

This species is distinguished from other known species by the unusual developments on the posterior trochanters of the male, by the shape of the ovipositor of the female and the rather dense, short appressed pile of the female abdomen.

MALE. — *Head* : The junction of the eyes is just slightly longer than the length of the ocellar triangle. The front and face are densely silvery pubescent, in some lights the front appears dark gray. The occiput is almost entirely gray, subshining black, only on upper portion near the ocellar triangle. Antennae brownish in ground color, third segment whitish pubescent, moderately acuminate (near fig. 49 *b*). *Thorax* : Subshining in ground color, rather densely covered with brownish pollen on the dorsum and grayish on the sides. Margins of mesonotum and scutellum clothed with erect pale hairs. Dorsocentral hairs distinct. Humeri and knobs of halteres yellow-white. *Legs* : Colored as in *T. gibbosa* n. sp. Posterior trochanters armed below with a sharp pointed projection near bases and another round keel-like development near apices (fig. 46 *c*). *Wings* : Entirely hyaline. The fourth section of costa is two times as long as the third and the fifth is two times as long as the third and fourth combined. The *r*—*m* crossvein is slightly diagonal in position and is located at the middle of the discal cell. The last section of the fourth vein (M_{1+2}) is

straight or nearly so. *Abdomen* : Subshining black in ground color, rather densely brownish gray pollinose. Clothed with distinct but sparse fine pile. *Hypopygium* : Asymmetrical, with an apical membranous area which projects slightly beyond the edge of the eighth sclerite and with a longitudinal cleft just to the left of the mid-line (fig. 46 *a*). The harpagones are broad and rounded apically, rather similar to *T. apicalis* (fig. 48 *b*) but curved inward.

Length : body and wings, 2,6-2,9 mm.

Female. — The abdomen is more conspicuously pilose than in the male and the pile is short and appressed. The front is subshining to polished black above and silvery below. The posterior trochanters are not developed as in the male. They are covered with fine pubescence and a few microscopic hairs below. The front femora have a pair of short bristles near bases below. The base of the ovipositor is rather oval in shape and with a gibbose area beneath. The piercer is slender, straight and is but slightly longer than its base (fig. 46 *b*). The hind margin of the sixth tergum has a small groove in the middle, this extends faintly up the dorsum for approximately one-fifth to one-fourth the length of the segment.

Holotype male : Okahandja, S. W. Africa, 19-29.XII.1927, Acc. n° 1928-53 (R. E. Turner). Allotype female, same data as type. Five paratypes, two males, three females : three females, Mossel Bay, Cape Province, S. Africa, February 1922 to May 1932, Acc. n°s 1922-97, 1932-206 (R. E. Turner); one male, Cape Province, Matjesfontein, S. Africa, Acc. n° 1928-522 (R. E. Turner) and one male, Natal, Van Reenen, Drakensberg, S. Africa, November 1926. Acc. n° 1926-499 (R. E. Turner).

Holotype, allotype and three paratypes returned to the British Museum and two paratypes deposited in the U. S. National Museum.

Tõmõsváryella anomala n. sp.

(Figs. 47 *a-b*.)

This species is related to *T. africana* n. sp. It is distinguished by the long erect pile of the abdomen, the slender ovipositor base and the polished black thorax and abdomen.

Female. — *Head* : Front broad, silvery pubescent on lower three-fourths, shining black above. Face silvery white, slightly gibbose below, but scarcely projecting beyond the eye margin. Mouthparts yellowish. Occiput polished black above, silvery below. Antennae black, third segment whitish pubescent and long acuminate (fig. 47 *b*). *Thorax* : Metallic black on the dorsum, except for grayish anterior border, pleura and sternum lightly gray pollinose. Humeri and halteres yellow. Mesonotum with distinct dorsocentral hairs. Scutellum with long pale hairs on the disc and the hind margin. *Legs* : Tarsi, basal halves of tibiae and narrow bases and apices of femora yellow, otherwise

black except for brownish yellow trochanters. Posterior trochanters clothed with short brownish yellow hairs below. Front femora without strong bristles below. *Wings* : Hyaline, fourth section of costa just two times as long as the third. The fifth section is over two times as long as the third and fourth combined. The *r*—*m* crossvein is situated slightly before the middle of the discal cell. The last section of the fourth vein (M_{1+2}) is nearly straight. *Abdomen* : Metallic black in color and rather conspicuously covered with long erect yellow hairs. The abdomen is slightly clavate from dorsal view, segments four to six being broader than the basal segments. The sixth tergum has no indication of a marginal cleft or dorsal groove. The base of the ovipositor is somewhat elongated, the piercer is short and straight extending just slightly beyond the base of segment four (fig. 47 *a*).

Length : body and wings, 2,8-3,0 mm.

Male. — Unknown.

Holotype female : E. Cape Prov. Katberg., 4.000 ft., December 1932, Acc. n° 1933-69 (R. E. Turner).

Type returned to the British Museum.

Tömösváryella apicalis n. sp.

(Figs. 48 *a-c.*)

This species is apparently related to *T. cilifemorata* (Becker). It differs as follows : The halteres are yellow, the front yellowish white pubescent, the hind trochanters are densely white pubescent below, the femora have no long black hairs below, the fifth section of the costa is two times as long as the third and fourth combined and the last section of the fifth vein is only three-fourths as long as the *m* crossvein.

Male. — *Head* : Occiput subshining black, thinly brownish pollinose and minutely sculptured with microscopic fine horizontal lines. Junction of the eyes equal to about two-thirds the length of the front. Front densely pubescent, faintly golden in color. Antennae brownish black in ground color, third segment acuminate (fig. 48 *a*). Face silvery pubescent, mouthparts brownish yellow. *Thorax* : Subshining black, lightly brown pollinose on the dorsum, gray on the pleura. Humeri and halteres light yellow. *Legs* : Chiefly black, only narrow apices of femora and broad bases of tibiae yellow. Hind femora with 5-6 slender flexor spines. Tarsi brownish to black. Posterior trochanters densely white pubescent below and with a few short inconspicuous hairs near bases below. *Wings* : Entirely hyaline. Third section of costa two times as long as fourth. The third and fourth combined are one-half as long as the fifth section. The *r*—*m* crossvein is located at the middle of the discal cell. The last section of the fourth vein is nearly straight and the ultimate section

of the fifth is about three-fourths as long as the *m* crossvein. *Abdomen* : Entirely subshining black, very faintly brownish pollinose. Almost completely bare of pile, with but a few short hairs on the sides of the segments. Hypopygium rather symmetrical from a dorsal view, slightly developed to the right side and with an apical membranous area (fig. 48 *b*). The coxopodite is cleft nearly one-half its length. The harpagones are black in color and rather broad and rounding at apices. The sixth sclerite is greatly attenuated into a narrow projection which extends beneath the harpagones (fig. 48 *c*).

Length : body, 3,0 mm.; wings, 2,6 mm.

FEMALE. — Unknown.

Holotype male : Mossel Bay, Cape Province, S. Africa, February 1922, Acc. n° 1922-97 (R. E. TURNER).

Type returned to the British Museum of Natural History.

Tömösváryella cilifemorata (BECKER).

Pipunculus cilifemoratus (BECKER), 1907, Zeits. für System. Hymen.-Dipt., 7 : 254.

This species has not been recognized from the original description. BECKER states that it is related to *P. geniculatus* MEIGEN and that the male is distinguished by having the face and front entirely silvery white, by the more polished body, the deep black halteres and the row of long, fine black hairs on the underside of the hind femora.

BECKER says that the female is not separable from *geniculatus*.

Type locality : Tunis.

Type probably in the Berlin Zoological Museum.

The writer has not seen this species.

Tömösváryella claripennis (LOEW).

Pipunculus claripennis LOEW, 1857, Ofvers. of K. Vet.-Akad. Forhandl., 14 : 375.

This species is not recognizable from the original description of the female and cannot be accurately placed. Following is a translation :

FEMALE. — Black subshining; posterior margin of the first abdominal segment white pollinose; third antennal segment long acuminate, reddish yellow, shining white (silvery white pubescent). Legs black, apices of femora and bases of tarsi yellow; wings pure hyaline.

In his supplementary description (1) LOEW indicates that this species is closely related to *P. geniculatus* MEIGEN and *unguiculatus* LOEW, distinguished

(1) *Dipteren-fauna Sudafrikas*, 1860, I : 284.

from the first by the long claws and pulvilli and from the last by having fine inconspicuous hairs on the underside of the hind femora towards the apex. The face is white and the upper part of the front shining black. The third antennal segment is brick red in color and produced into an unusually long point at apex, longer than in *geniculatus*. Thorax and abdomen subshining black, lightly pollinose. The third costal section is a little shorter than the fourth and the $r-m$ crossvein is slightly beyond the apex of the first vein and near the middle of the discal cell.

MALE. — Unknown.

Type locality : Caffraria.

Type probably in the Berlin Zoological Museum.

Tömösváryella disjuncta (BECKER).

Pipunculus disjunctus BECKER, 1900, Berl. Ent. Zeitschr., 45 : 239.

This species is apparently more closely related to ***apicalis*** n. sp. than to any other African species. It is distinguished by the vertical cleft on the dorsum of the male hypopygium and the white pubescent front. The following notes are from the original description :

« A small, naked, dark colored species, related to *nigritulus* ZETT. ».

MALE. — *Head* : Front whitish pubescent, eyes contiguous. Antennae black, third segment moderately elongated. *Thorax* : Entirely opaque black, humeri brownish yellow. *Legs* : Chiefly black, knees and bases of tibiae yellow, tarsal subsegments brownish. *Wings* : Stigma absent. Third costal section one-half as long as fourth, last section of fourth vein almost straight. Crossvein $r-m$ located near the middle of the discal cell. *Abdomen* : Opaque black, faintly shining and bare of pile. *Hypopygium* : With a large vertical cleft or membranous area.

Length : body, 2,0 mm.; wings, 2,5 mm.

FEMALE. — Front broad, grayish below, shining black above. Ovipositor base moderately oblong, piercer as long as base and gently curved.

Type locality : Assuan, Egypt.

Type probably in the Berlin Zoological Museum.

The writer has not seen the species.

Tömösváryella frontata (BECKER).

Pipunculus frontatus BECKER, 1897, Berl. Ent. Zeitschr., 42 : 87.

This species is distinguished from all known members of the genus by having the eyes of the male separated on the front.

The following notes are from the original description :

MALE. — Shining black species, faintly pollinose. *Head* : Front narrow, shining black. Whitish pubescent just above antennae. Face concolorous with the lower part of the front. Third segment of antennae yellow. *Thorax* : Almost entirely polished black, only the scutellum brownish pollinose. Humeri and halteres yellow. *Legs* : Femora black except for yellowish bases and apices. Tibiae yellow except for median discolorations. First four subsegments of tarsi yellow ultimate subsegment blackish. *Wings* : Stigma absent. Crossvein *r—m* located at the middle of the discal cell. Fourth section of costa two times as long as the third, the fifth section two to three times longer than the fourth. *Abdomen* : Distinctly pilose, metallic black in color. *Hypopygium* : Very small, with no membranous area or cleft.

FEMALE. — Front broad, chiefly gray, shining black above. Last segment of the abdomen sulcate in the middle. Base of ovipositor long oval, piercer short, thick and recurved. Legs chiefly yellow, femora broadly infuscated medianly, tibiae narrowly discolored at their middle.

Length : body, 2,5 mm.; wings, 2,0 mm.

Type locality : Sinaja, Transsylvanian Alps.

Type probably in the Berlin Zoological Museum.

The writer has not seen this species. BECKER recorded it from Alexandria, Egypt and Tunis.

Tömösváryella gibbosa n. sp.

(Figs. 49 *a-b*.)

This species is related to *T. mutata* (BECKER) but has no distinct frontal groove. The male genitalia are distinctive from all known *Tömösváryella*.

MALE. — *Head* : Eyes joined for about two times the length of the frontal triangle. Front with a shining black triangular area, extending to above middle, this is narrowly bissected longitudinally by a very narrow line of pollen down the middle. Upper portion of front subshining black, thinly white pubescent. Face densely white pubescent, mouthparts yellow-brown. Lower portion of the face swollen, projecting out conspicuously beyond the eye margin (fig. 49 *b*). Occiput opaque, lightly gray above and densely so below. Antennae black, third segment rather short acuminate, densely white pubescent.

Thorax : Subshining metallic black. Mesonotum very lightly brownish pollinose, scutellum almost entirely polished. Humeri and halteres light yellow. *Legs* : Chiefly black, apices of femora narrowly yellow, tibiae very broadly so. First four subsegments of tarsi brownish yellow. Posterior trochanters densely white pubescent below with just a few very fine microscopic hairs in the pubescent area. *Wings* : Entirely hyaline. The third section of the costa is one-third as long as the fourth and the fifth section is one and one-half times longer than the third and fourth combined. The *r*—*m* crossvein is at the middle of the discal cell. The ultimate section of the fourth vein (M_{1+2}) is strongly curved. *Abdomen* : Metallic black in ground color, lightly brownish pollinose on the dorsum and grayish on the sides. Abdomen almost bare, with but scattered inconspicuous hairs. *Hypopygium* : Very asymmetrical, developed to the right. With a large apical membranous area which is extended into a projection equal in length to the rest of the hypopygium from dorsal view (fig. 49 *a*). The eighth segment is much longer on the venter than on the dorsum, the sclerotized portion is over two times as long as the membranous apex. The genitalia have not been dissected but the harpagones appear to be symmetrical rather slender and pointed apically.

Length : body, 4,0 mm.; wings, 3,4 mm.

FEMALE. — Unknown.

Holotype male : Natal, Van Reenan, Drakensberg, S. Africa, November 1926, Acc. n° 499 (R. E. TURNER).

Type returned to the British Museum.

Tõmõsváryella mutata (BECKER).

Pipunculus mutatus BECKER, 1897, Berl. Ent. Zeitschr., 42 : 85.

The following notes are from the original description :

MALE. — *Head* : Front very narrow and with a distinct depression above antennae in the form of a sharp pointed triangle. Eyes contiguous above. Third antennal segment brownish yellow. Long acuminate and narrow. *Thorax* : Opaque brownish black, faintly shining. Halteres yellow. *Legs* : Chiefly black, bases of tibiae and the first four subsegments of tarsi yellow. *Wings* : Entirely hyaline. The *r*—*m* crossvein is at the middle of the discal cell. The fourth costal section is approximately three times longer than the third and the fifth section is one and one-half to two times longer than the fourth. *Abdomen* : Subshining black. *Hypopygium* : Moderately developed. membranous area large and elliptical.

Length : body, 3,5-4,0 mm.; wings, 3,0-3,5 mm.

FEMALE. — Front gray below, shining black above. The fourth costal section is about two times longer than the third. The base of the ovipositor is subhemispherical, the piercer is rather elongate and curved upward. The piercer extends to about the apex of the second abdominal segment.

Type locality : Ober-Aegypten.

Type probably in the Berlin Zoological Museum.

The writer has not seen this species. BECKER has recorded it from several localities in Egypt and also from Hungary.

Tömösváryella propria n. sp.
(Figs. 50 *a-c.*)

This species is related to *T. disjuncta* (BECKER) but is distinguished from all known species of the genus by the very large apical keel of the male hypopygium.

MALE. — *Head* : Eyes joined on the front for a distance equal to two times the length of the ocellar triangle. Front and face silvery pubescent. Occiput subshining black above and gray to silvery on the lower portion. Antennae brownish black, third segment acuminate (rather similar to fig. 48 *a*). *Thorax* : Mesonotum subopaque black, brownish pollinose on the dorsum, except for gray areas just inside the humeri. Scutellum shining, very lightly pollinose and almost devoid of pile. Humeri and halteres pale yellow. *Legs* : Same coloration as in *T. gibbosa* n. sp. Posterior trochanters slightly keeled below (fig. 50 a), lightly pubescent and with but a few fine microscopic hairs near bases. *Wings* : Venation very similar to that of *T. gibbosa* n. sp. except that the last section of the fourth vein is nearly straight. *Abdomen* : Subshining metallic black, lightly brown pollinose on the dorsum. Abdomen chiefly bare but with some fine yellow hairs on the sides and dorsum of the posterior portion. *Hypopygium* : About two times as long as the fifth segment. The membranous portion produced into a very large keel which extends from the base around the apex (figs. 50 *b-c*). The harpagones are yellowish in color, they are broad at bases and narrowed apically. The inner harpago has a longitudinal keel extending three-fourths its length from base. The coxopodite is cleft over half its length.

Length : body and wings, 3,2 mm.

Holotype male : Cape Province, Mossel Bay, South Africa, June-July 1930, Acc. n° 402 (R. E. TURNER).

Type returned to the British Museum.

Tömösváryella speciosa n. sp.
(Figs. 51 *a-c*.)

This species differs from all known *Tömösváryella* from Africa by having the *r*—*m* crossvein situated at the basal one-third of the discal cell. It fits fairly well the original description of *Dorylomorpha nitidifrons* (Becker) but is a true *Tömösváryella*; the third antennal segment is yellow, the front silvery on lower two-thirds, the abdomen entirely polished and the posterior margin of the sixth tergum of the female is not excised.

Female. — *Head* : Upper third of front polished metallic black, lower portion and face silvery pubescent. Occiput chiefly gray pollinose, shining black only on upper portion. Third antennal segment yellow, very long acuminate (fig. 51 *a*). Labellum yellow-white, palpi brown. *Thorax* : Metallic black in ground color, rather thickly grayish brown pollinose. Mesonotum and scutellum bare, or nearly so. Humeri and halteres yellow. *Legs* : Coxae and femora except narrow apices, black. Trochanters and last subsegment of tarsi brown. Tibiae with broad brown to black bands, the basal halves and the apices are yellow. The first four subsegments of tarsi yellow. Posterior trochanters densely pubescent below. Front femora each with a pair of strong black bristles below near bases. *Wings* : Lightly but distinctly fumose. The third costal section is one-half the length of the fourth and the fifth is over two times as long as the third and fourth combined. The *r*—*m* crossvein is at the basal one-third of the discal cell. The ultimate section of the fourth vein (M_{1+2}) is very slightly curved. The *m* crossvein is longer than the greatest width of cell R_5 (fig. 51 *c*). *Abdomen* : Chiefly metallic black in color, sparsely covered with distinct erect hairs. Broadest at segments two and three and gradually tapering towards the apex. Base of ovipositor globose, piercer rather slender and straight. It is nearly two times as long as its base and extends to just beyond the apex of segment three (fig. 51 *b*).

Length : body and wings, 3,0 mm.

Male. — Unknown.

Holotype female : Cape Province, Somerset East, S. Africa, November 1930, Acc. n° 1930-593 (R. E. Turner).

Type returned to the British Museum.

Tömösváryella subvirescens (LOEW).

(Figs. 52 *a-b*.)

Pipunculus subvirescens LOEW, 1872, Berl. Ent. Zeitschr., 16 : 87.
Pipunculus aridis WILLISTON, 1893, North Amer. Fauna, 7 : 255.
Pipunculus pilosiventris BECKER, 1900, Berl. Ent. Zeitschr., 45 : 233.
Pipunculus glabrum ADAMS, 1905, Kans. Univ. Sci. Bull., 3 : 165.

New synonomy based upon a study of the type in the Snow Collection at the University of Kansas.

Pipunculus albiseta CRESSON, 1911, Trans. Amer. Entom. Soc., 36 : 318.
Pipunculus insularis CRESSON, 1911, Trans. Amer. Entom. Soc., 36 : 317-318.
Pipunculus metallescens MALLOCH, 1913, Proc. U. S. Nat. Mus., 43 : 298.
Pipunculus knowltoni HARDY, 1939. Journ. Kans. Ent. Soc., 12 : 20-22.

This species is very well defined and is readily distinguished from all known *Tömösváryella* by the hemispherical and symmetrical hypopygium (fig. 52 *a*) and the conspicuous trapezoid development on each of the hind trochanters below (fig. 52 *b*). The females fit near *T. frontata* (BECKER) but the base of the ovipositor is small, oval and the piercer slender, straight and equal to the length of the base. They also possess two moderately strong bristles on the underside of the each front femora near base.

MALE. — *Head* : Junction of the eyes only about three-fourths as long as the frontal triangle. Lower part of front and face silvery pubescent. Antennae brown to black, third segment moderately acuminate, rather similar to that of figure 48 *a*. *Thorax* : Polished black in ground color, lightly brownish on the dorsum, grayish on the sides. Scutellum metallic black, very faintly dusted and very sparsely covered with fine hairs. Humeri and halteres yellow, tegulae black. *Legs* : Chiefly black, yellow on the first three subsegments of tarsi, apices of femora and apices and bases of tibiae. *Wings* : Third costal section one-half to three-fourths as long as the fourth, the two combined are about half as long as the fifth. The $r-m$ crossvein is at the middle of the discal cell and the last section of the fourth vein (M_{1+2}) is gently curved. *Abdomen* : Chiefly metallic black, very faintly pollinose, conspicuously covered with short suberect dark hairs. *Hypopygium* : About three-fourths as long as the fifth segment and with a small subapical membranous area on the right side (fig. 52 *a*).

Length : body, 3,0 mm.; wings, 3,3 mm.

FEMALE. — The front is broad, subshining above and gray below. The hind trochanters are unarmed. The base of the ovipositor is oblong, the piercer straight and slender, just slightly longer than the base.

Type locality : Belfrage, Texas.

Type at the Cambridge Museum of Comparative Zoology.

The species is widely distributed throughout the Nearctic and Neotropical regions. BECKER's records of *pilosiventris* were from Egypt and Abyssinia and ADAMS' *glabrum* was from Salisbury, South Africa. The specimens at hand are from Mossel Bay, Cape Province, S. Africa, February-May 1921, 1930 (R. E. TURNER) and Natal, Weenen, March 1924 (H. P. THOMASSET).

Tömösváryella varana n. sp.
(Figs. 53 *a-d.*)

This species is related to *T. disjuncta* (BECKER) but is readily distinguished by the largely membranous hypopygium of the male and the slender, straight ovipositor of the female.

MALE. — *Head* : Junction of eyes very short, about equal in length to the ocellar triangle. Front and face silvery pubescent. Occiput polished black above and gray pollinose on lower one-half. Antennae yellowish brown, acuminate (similar to fig. 48 *a*). *Thorax* : Subopaque black, densely brownish black pollinose on the mesonotum and rather lightly grayish on the pleura. Humeri yellowish white. Halteres yellow. *Legs* : Chiefly black, bases of tibiae broadly yellow. First four subsegments of tarsi yellowish. Hind trochanters unarmed except for a small patch of short yellow hairs (fig. 53 *a*). Middle coxae each with two strong bristles at apices. *Wings* : Third section of costa one-half to one-third the length of the fourth. The fifth section is not quite two times as long as the third and fourth combined. The *r—m* crossvein is very slightly beyond the middle of the discal cell. The last section of the fourth vein (M_{1+2}) is slightly curved. The ultimate section of the fifth vein (M_{3+4}) is equal in length to the *m* crossvein. *Abdomen* : Chiefly polished black, almost devoid of pile except for scattered, short yellowish hairs. *Hypopygium* : With a very large membranous area which occupies most of the dorsal portion (fig. 53 *d*). Harpagones broad and rounded at apices. Inner harpago curved inward at apex. Sixth sclerite narrow (fig. 53 *c*).

Length : body and wings, 2,7 mm.

FEMALE. — Upper one-third to one-half of front subshining black, lower portion silvery pubescent. Upper one-third of front with a very slight median indentation. Posterior trochanters with just a few short yellow hairs in the ventral clump. Front femora with two strong bristles below near bases. Sixth abdominal tergum with a distinct ridge down the middle from apex to base. Base of ovipositor globose, not elongated. Piercer long, slender and straight, reaching to about the base of second abdominal segment (fig. 53 *b*).

Holotype male : Cape Town, Milnerton, S. Africa, January 1926, Acc. n° 71 (R. E. TURNER). Allotype female, same locality and collector as type, February 1926, Acc. n° 119. Six paratypes : One male, same data as type; one female, same locality and collector as type, 14-28.VII.1925, Acc. n° 28; one

female, Cape Province, Mossel Bay, S. Africa. 6.VII.1930, Acc. n° 402 (R. E. TURNER); one female, Natal National Park, S. Africa, March 1932 (A. MACKIE); one female, Cape Province, S. Africa, Oudtshoorn, October 1931 (A. MACKIE) and one female, Aus. S. W. Africa, December 1929, Acc. n° 1930-113 (R. E. TURNER).

The holotype, allotype and two paratypes have been returned to the British Museum of Natural History. Two paratypes have been returned to the Commonwealth Institute of Entomology and two paratypes have been deposited in the United States National Museum.

Tõmõsváryella vicina (BECKER).

Pipunculus vicinus BECKER, 1900, Berl. Entom. Zeitschr., 45 : 238.

The following notes were taken from the original description :

MALE. — *Head* : Antennae brown, third segment long acuminate, white pubescent. Front whitish. *Thorax* : Brownish black, slightly shining on mesonotum and scutellum. Halteres yellow. *Legs* : Chiefly black, yellow on the first four tarsal subsegments, apices of tibiae and femora and bases of tibiae. Posterior trochanters each with a triangular projection below. *Wings* : The *r—m* crossvein is between the apex of the first and second veins. The third costal section is half as long as the fourth, the fifth is two and one-half times as long as the fourth. *Abdomen* : Shining coppery, sides gray-brown pollinose, clothed with black and pale pile. *Hypopygium* : Small with a distinct longitudinal division but no membranous area.

Length : body and wings, 2,75-3,0 mm.

FEMALE. — Third antennal segment yellow. Front entirely gray. Ovipositor base glandiform, shining black. Piercer yellow, equal to its base in length and incurved. Body almost entirely gray, abdomen opaque.

Type locality : Assiut and Luxor, Egypt.

Type probably in the Berlin Zoological Museum.

The writer has not seen the species.

University of Hawaii, Honolulu, T.H.

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turneri n. sp. (Dorilas 6, 23, **58**

umbrinus LOEW Dorilas 11, 55, **59**

varana n. sp Tömösváryella 65, 66, **76**
Verrallia MIK, syn. of Prothechus RONDANI. 4
vicarius n. sp. (Dorilas) 12, **60**
vicina BECKER Tömösváryella 65, 66, **77**
virginica BANKS Prothechus ; syn. of auctus FALLEN 4

zululandicus n. sp. Dorilas . 10, 14, 22, 39, 48, **61**

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PLATE I

EXPLANATION OF PLATE I.

FIG. 1. — *Dorilas abditus* n. sp.
a. Male hypopygium, dorsal view.

FIG. 2. — *D. abdominalis* (LOEW).
a. Male hypopygium, dorsal view.

FIG. 3. — *D. aculeatus* (LOEW).
a. Antenna; *b*. Male hypopygium, dorsal; *c*. Female abdomen, lateral.

FIG. 4. — *D. æmulus* n. sp.
a. Male hypopygium, dorsal; *b*. Antenna; *c*. Posterior trochanter of female; *d*. Female abdomen, lateral.

FIG. 5. — *D. æthiopicus* n. sp.
a. Antenna; *b*. Left side of male abdomen; *c*. Female abdomen, lateral; *d*. Male hypopygium, dorsal.

FIG. 6. — *D. albivillosus* n. sp.
a. Female abdomen, dorsal; *b*. Antenna; *c*. Female ovipositor, lateral.

FIG. 7. — *D. angustifacies* n. sp.
a. Wing; *b*. Male hypopygium, dorsal; *c*. Antenna.

FIG. 8. — *D. bellulus* n. sp.
a. Male hypopygium, dorsal; *b*. Antenna.

FIG. 9. — *D. brevicornis* (LOEW).
a. Antenna; *b*. Female adbomen, lateral; *c*. Wing.

FIG. 10. — *D. calcaratus* n. sp.
a. Antenna; *b*. Middle tibia of female; *c*. Female abdomen, lateral.

PLATE I

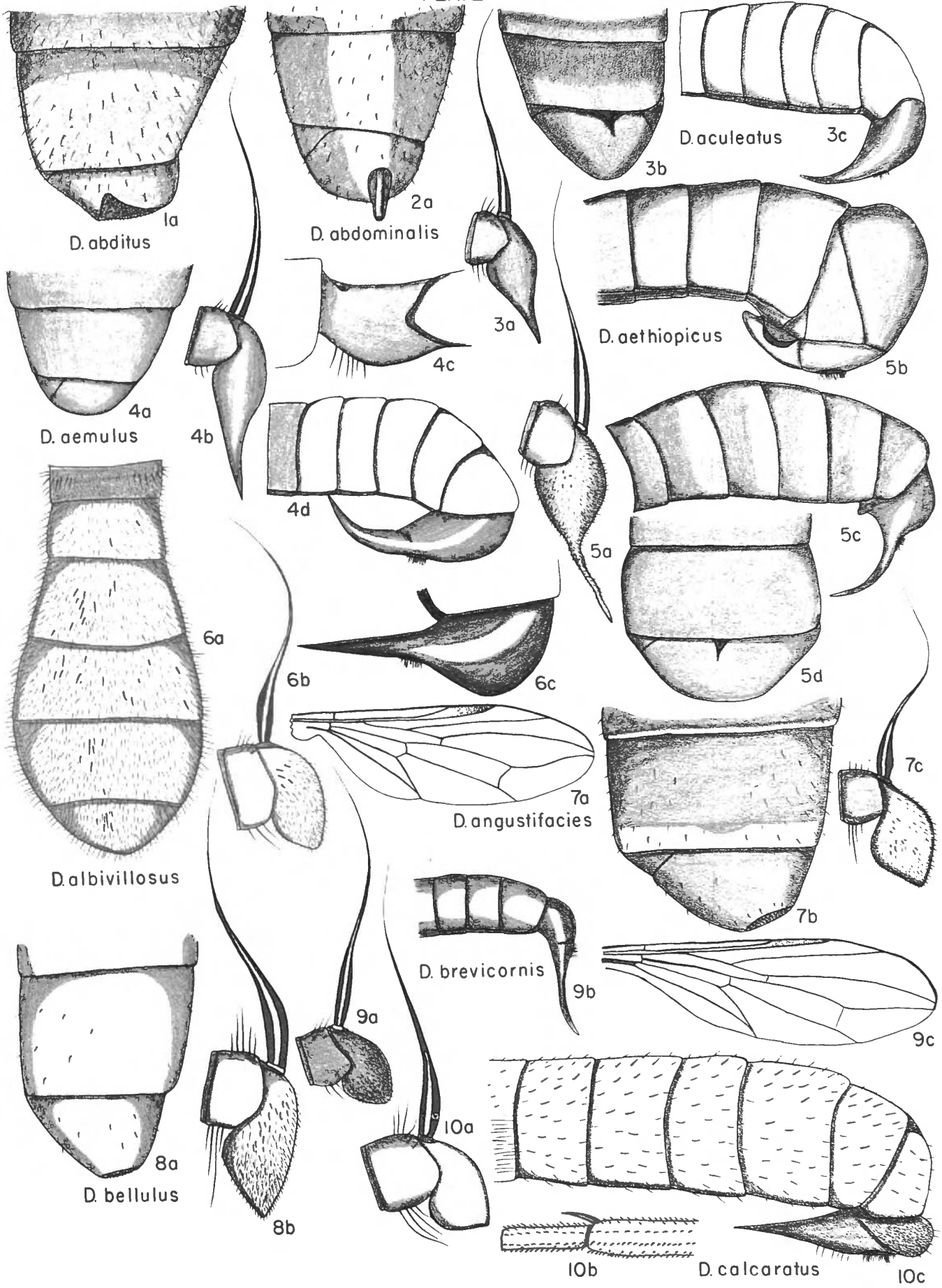

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PLATE II

EXPLANATION OF PLATE II.

FIG. 11. — *D. candidulus* n. sp.
a. Wing; *b*. Male hypopygium, dorsal.

FIG. 12. — *D. congoensis* n. sp.
a. Male hypopygium, dorsal.

FIG. 13. — *D. conspectus* n. sp.
a. Antenna; *b*. Male hypopygium, dorsal.

FIG. 14. — *D. cupreiventris* (BECKER).
a. Male hypopygium, dorsal.

FIG. 15. — *D. diversus* n. sp.
a. Male hypopygium, dorsal; *b*. Antenna.

FIG. 16. — *D. encerus* n. sp.
a. Male hypopygium, dorsal; *b*. Antenna.

FIG. 17. — *D. evanidus* n. sp.
a. Male hypopygium, dorsal.

FIG. 18. — *D. excisus* n. sp.
a. Female abdomen, lateral; *b*. Male hypopygium, dorsal; *c*. Antenna.

FIG. 19. — *D. falcatus* n. sp.
a. Female abdomen, lateral; *b*. Antenna.

FIG. 20. — *D. flavicrus* (RAPP).
a. Antenna, copied from RAPP.

FIG. 21. — *D. flexus* n. sp.
a. Antenna; *b*. Hind leg of male; *c*. Female ovipositor, lateral; *d*. Female ovipositor, ventral; *e*. Male hypopygium, dorsal.

FIG. 22. — *D. galeatus* n. sp.
a. Male hypopygium, dorsal; *b*. Antenna.

FIG. 23. — *D. inornatus* n. sp.
a. Antenna; *b*. Male hypopygium, dorsal.

PLATE 2

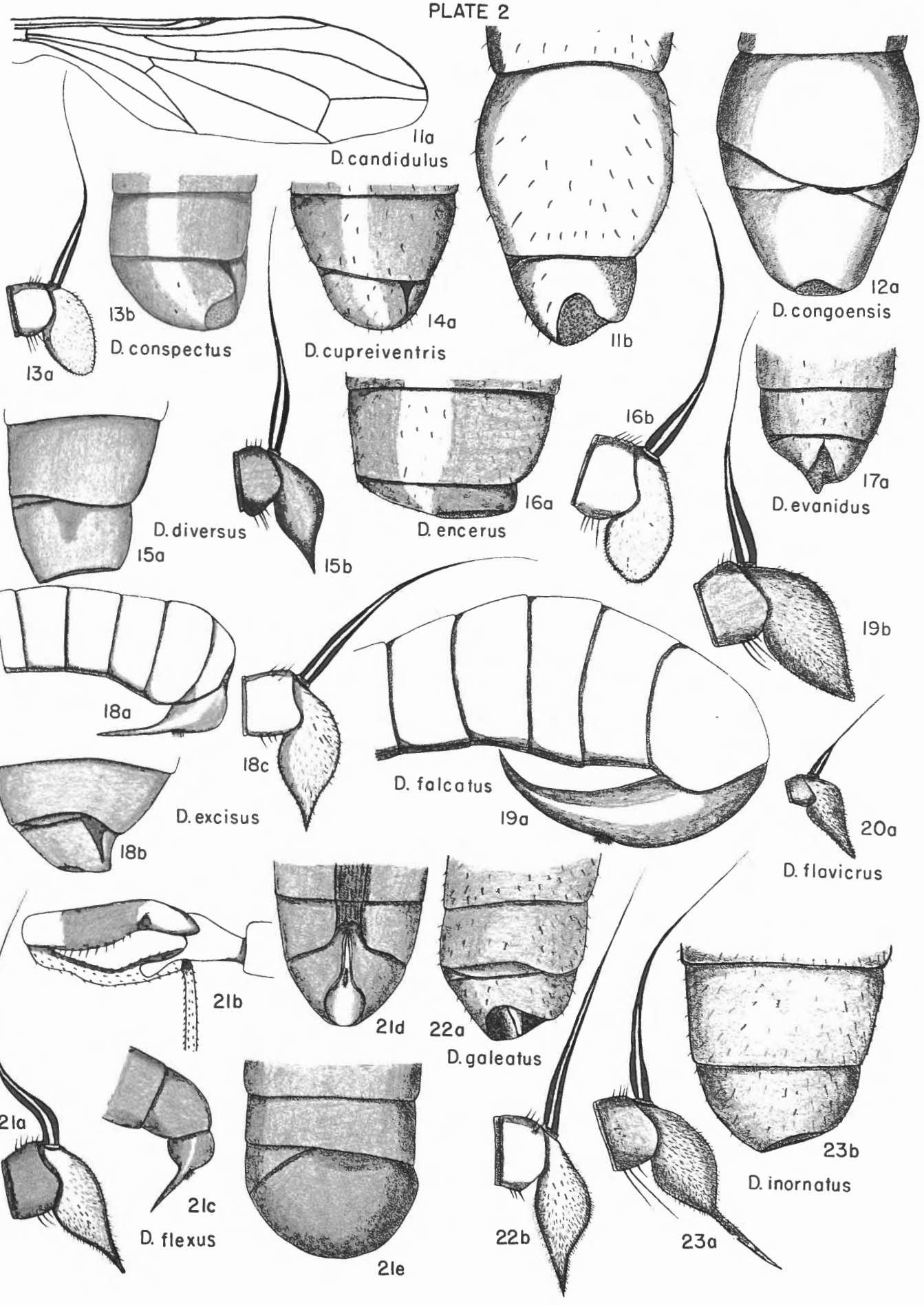

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PLATE III

EXPLANATION OF PLATE III.

FIG. 24. — *D. læviventris* (LOEW).
a. Antenna; *b*. Female ovipositor, lateral.

FIG. 25. — *D. liberia* (CURRAN).
a. Portion of wing, area of *m* crossvein; *b*. Female abdomen, lateral.

FIG. 26. — *D. libratus* n. sp.
a. Antenna; *b*. Male hypopygium, dorsal.

FIG. 27. — *D. lubuti* (CURRAN).
a. Apex of wing; *b*. Antenna; *c*. Male hypopygium, dorsal.

FIG. 28. — *D. meruensis* n. sp.
a. Male hypopygium, end view; *b*. Antenna; *c*. Male hypopygium, dorsal.

FIG. 29. — *D. mutillatus* (LOEW).
a. Antenna; *b*. Female abdomen, lateral; *c*. Male hypopygium, dorsal.

FIG. 30. — *D. natalensis* n. sp.
a. Male hypopygium, dorsal; *b*. Left side of male abdomen; *c*. Antenna.

FIG. 31. — *D. obtusus* n. sp.
a. Male hypopygium, ventral; *b*. Wing; *c*. Antenna; *d*. Male hypopygium, dorsal.

PLATE 3

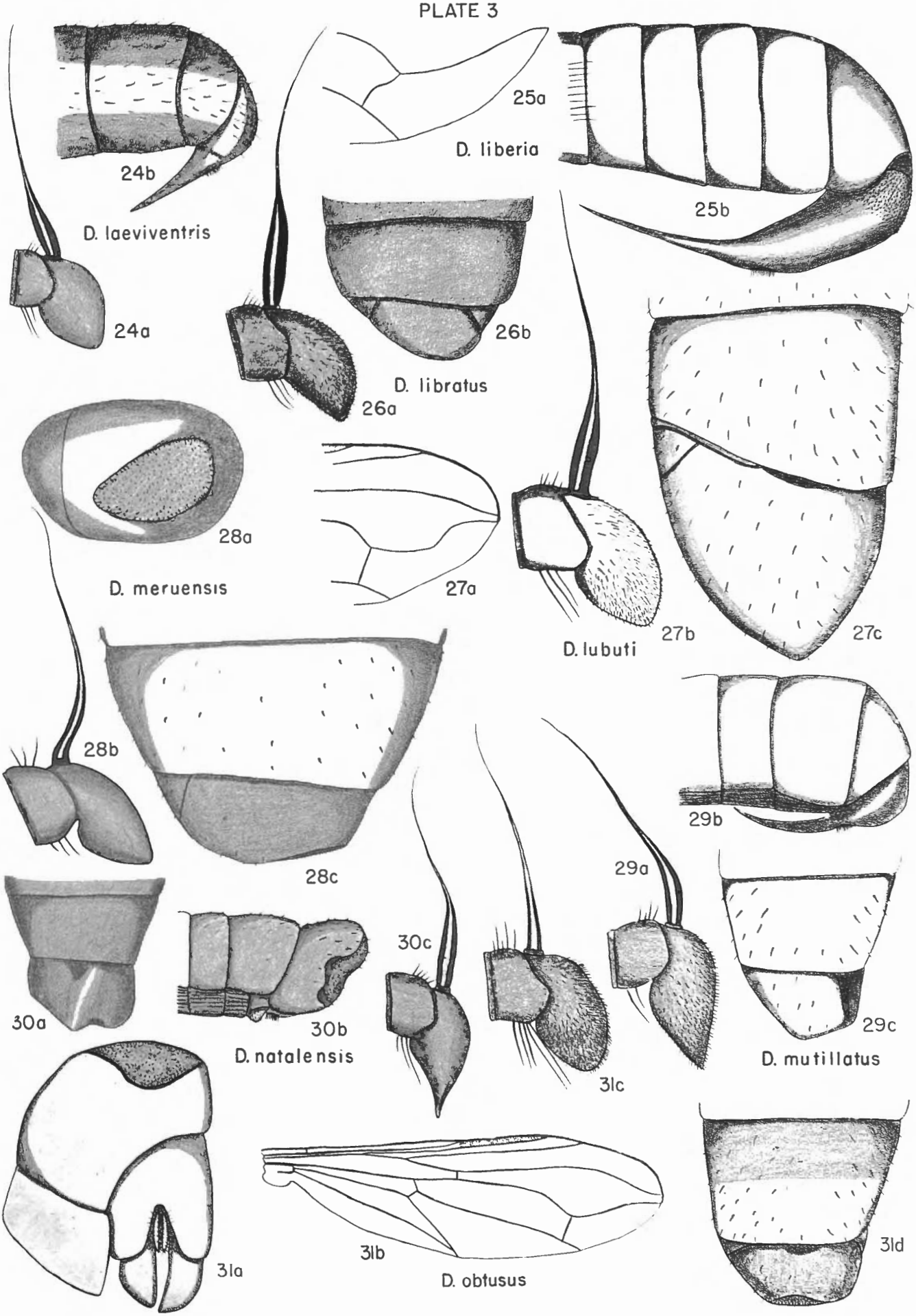

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PLATE IV

EXPLANATION OF PLATE IV.

FIG. 32. — *D. pallidipleura* (CURRAN).
a. Male hypopygium, left side; *b*. Male hypopygium, dorsal.

FIG. 33. — *D. parvicornis* n. sp.
a. Antenna; *b*. Male hypopygium, dorsal.

FIG. 34. — *D. parvifrons* (LOEW).
a. Antenna; *b*. Female abdomen, lateral.

FIG. 35. — *D. porrectus* n. sp.
a. Male hypopygium, dorsal; *b*. Antenna.

FIG. 36. — *D. pusillus* n. sp.
a. Antenna.

FIG. 37. — *D. quadratus* n. sp.
a. Male hypopygium, dorsal.

FIG. 38. — *D. reconditus* n. sp.
a. Female abdomen, lateral; *b*. Antenna.

FIG. 39. — *D. setiformis* n. sp.
a. Female abdomen, lateral; *b*. Antenna

FIG. 40. — *D. sinuosus* n. sp.
a. Antenna; *b*. Male hypopygium, dorsal; *c*. Wing.

FIG. 41. — *D. turneri* n. sp.
a. Antenna; *b*. Male hypopygium, dorsal.

PLATE 4

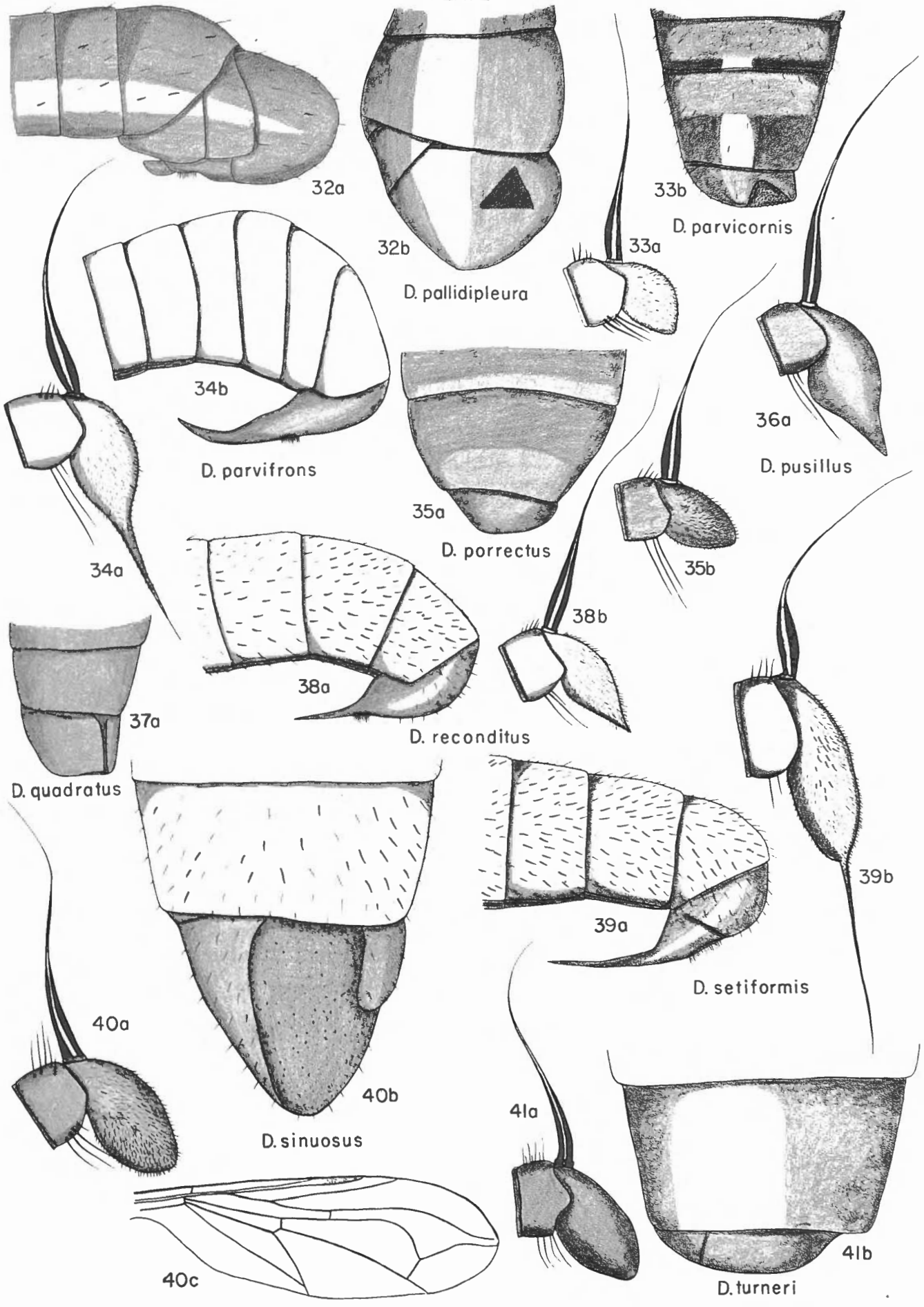

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PLATE V

EXPLANATION OF PLATE V.

FIG. 42. — *D. umbrinus* (LOEW).
a. Antenna; *b*. Female ovipositor, lateral; *c*. Male hypopygium, dorsal; *d*. Female ovipositor base, dorsal.

FIG. 43. — *D. vicarius* n. sp.
a. Antenna; *b*. Male hypopygium, dorsal.

FIG. 44. — *D. zululandicus* n. sp.
a. Antenna; *b*. Male hypopygium, dorsal.

FIG. 45. — *Beckerias inchoatus* n. sp.
a. Antenna; *b*. Wing; *c*. Male hypopygium, dorsal.

FIG. 46. — *Tömösváryella africana* n. sp.
a. Male hypopygium, dorsal; *b*. Female ovipositor, lateral; *c*. Hind trochanter of male.

FIG. 47. — *T. anomala* n. sp.
a. Abdomen of female, lateral; *b*. Antenna.

FIG. 48. — *T. apicalis* n. sp.
a. Antenna; *b*. Male hypopygium, dorsal; *c*. Male hypopygium, ventral

PLATE 5

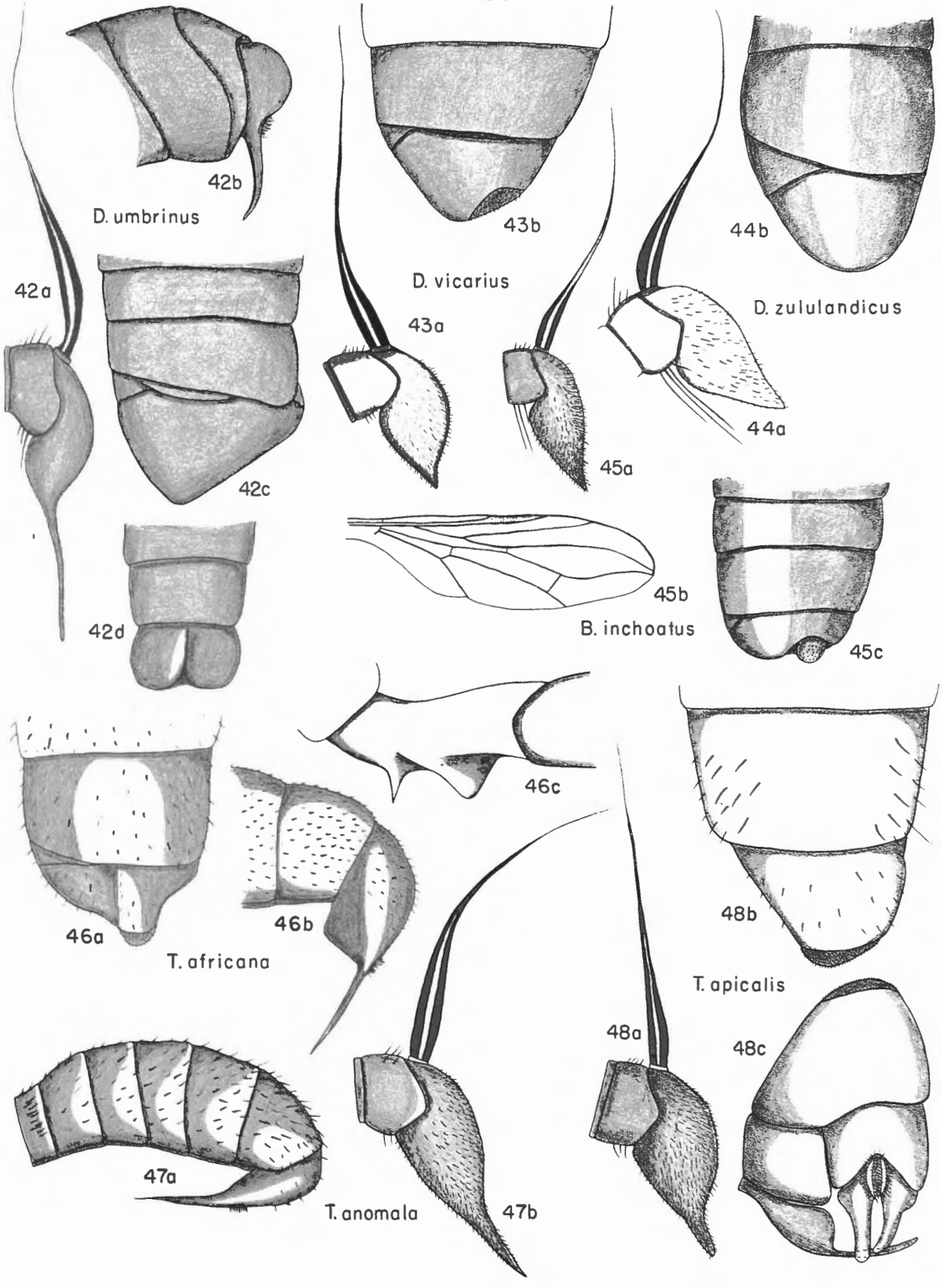

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PLATE VI

EXPLANATION OF PLATE VI.

FIG. 49. — *T. gibbosa* n. sp.
a. Male hypopygium, dorsal; *b*. Male head, lateral.

FIG. 50. — *T. propria* n. sp.
a. Hind trochanter of male; *b*. Male hypopygium, right side; *c*. Male hypopygium, dorsal.

FIG. 51. — *T. speciosa* n. sp.
a. Antenna; *b*. Female abdomen, lateral; *c*. Wing.

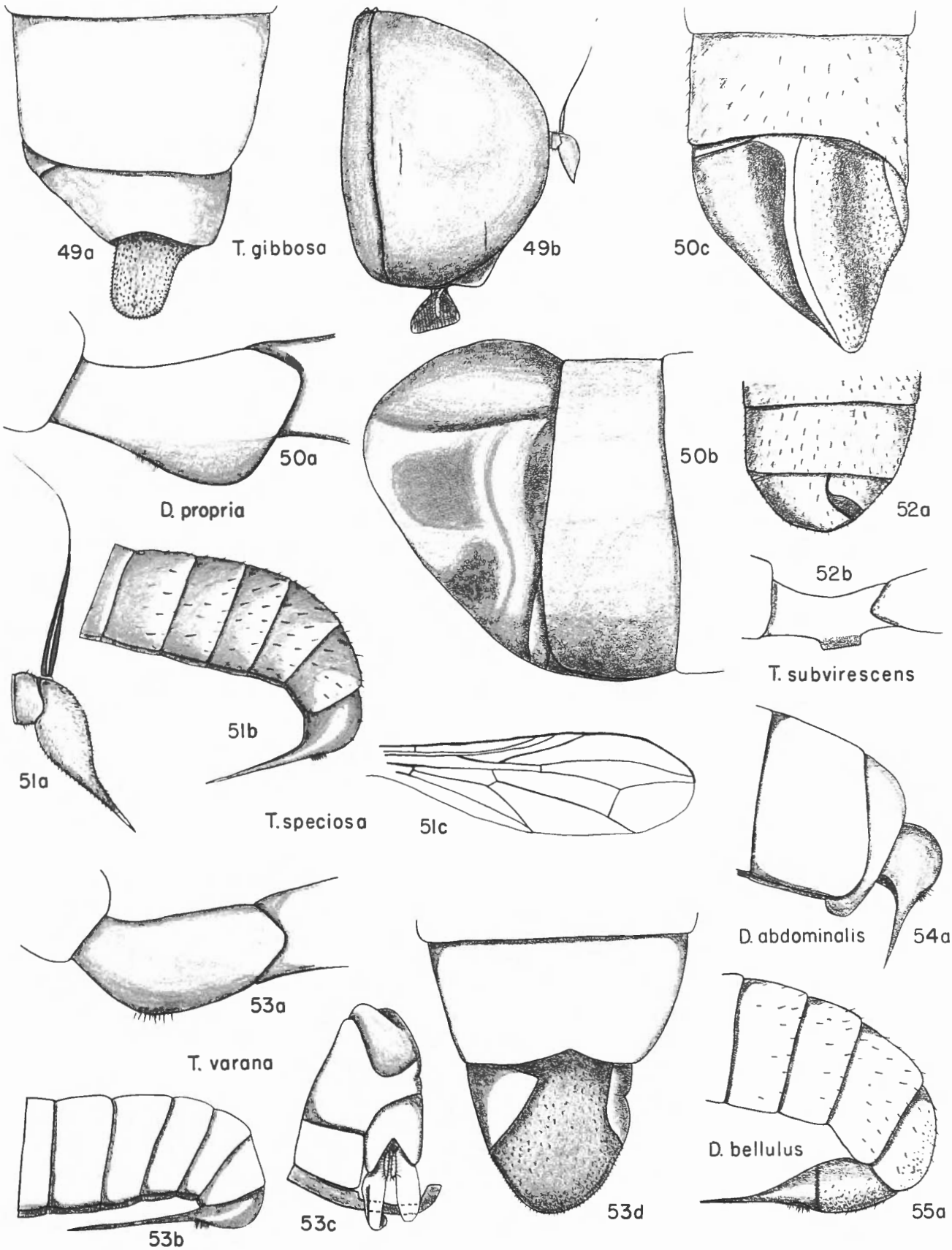
FIG. 52. — *T. subvivescens* (LOEW).
a. Male hypopygium, dorsal; *b*. Hind trochanter of male.

FIG. 53. — *T. varana* n. sp.
a. Hind trochanter of male; *b*. Female abdomen, lateral; *c*. Male hypopygium, ventral; *d*. Male hypopygium, dorsal.

FIG. 54. — *Dorilas abdominalis* (LOEW).
a. Female ovipositor, lateral.

FIG. 55. — *D. bellulus* n. sp.
a. Female abdomen, lateral.

PLATE 6


49a
T. gibbosa
49b
50c
50a
50b
52a
52b
D. propria
T. subvirescens
51a
51b
T. speciosa
51c
D. abdominalis
54a
53a
T. varana
53b
53c
53d
D. bellulus
55a